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Social Circumplex Traits and Organisational Behaviour

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Abstract

Drawing upon arguments for the interactions between Five Factor Model (FFM) traits in predicting organisational behaviours, this study examined the relationships between the Extraversion-Agreeableness Abridged Big Five Circumplex (AB5C) traits and organisational behaviours (Counter Productive Workplace Behaviours, CWBs, and Organisational Citizenship Behaviours, OCBs).

The AB5C circumplex measures Extraversion and Agreeableness as well as two positive blends and two negative blends of each trait. In a sample of 220 adults in full-time employment, a series of correlation, regression, and mediation analyses indicated a double dissociation between traits and criterion. Positive blends of Extraversion and Agreeableness were not only correlated with OCBs, but also non-significantly related to CWBs. Conversely, the concurrent positive and negative blends were correlated with CWBs, but unrelated to OCBs. Furthermore, the circumplex traits contributed incremental variance over traits in isolation in predicting OCBs and CWBs.

Understanding the unique circumplex blends of the FFM traits offers opportunities to enhance the criterion validity of FFM measures. Whilst still fitting into the FFM, these circumplex traits offer a more nuanced understanding of the relationship between social personality traits and organisational behaviour. Collectively, these discoveries show the circumplex traits express unique information not described by FFM traits in isolation, leading to an improved understanding of the temperamental nature of helping and hurting behaviours in organisations.

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Chapter One: Personality and Organisational Behaviour

For an organisation to flourish, employers need to know which predictors lead to the selection of the best employees. However, which predictors should employers use? Personality remains one of the most reliable ways to separate individuals for a range of outcomes (Funder & Ozer, 2019). This chapter aims to unpack how personality is essential to understand individuals and their behaviour within organisations.

Personality describes relatively stable patterns of feelings, motivations, thoughts, and actions in response to a range of environments and specific conditions (DeYoung, 2015). An essential feature of personality is a tendency for an individual to express similar states in different situations over time (Fleeson & Gallagher, 2009). Personality traits do not unequivocally predict behaviour at any given moment (Lewis, 2005; Nowak, Vallacher, & Zochowski, 2005), but instead predict general tendencies towards types of behaviour (Moskowitz & Zuroff, 2005). It is this lifetime stability (Ferguson, 2010; Roberts & DelVecchio, 2000; Specht, et al., 2014) which draws the attention of many employers, as it may predict behaviour generally in the future (Burger, 2015; Carducci, 2015).

Another important feature of personality is that traits are situationally specific, in that traits respond to particular classes of stimuli. Some, for example, are specifically geared towards aversive stimuli, others to rewarding stimuli, and others again to interpersonal relations. To the degree that a personality trait aligns with relevant situational factors, the stronger predictive relationships become (Judge & Erez, 2007).

The Five-Factor Model (FFM)

Throughout a significant portion of the 20th century, personality researchers questioned the underlying nature and structure of personality. A central aspect of this debate was: what are the enduring variations between individuals, and how are they organised? Portions of this questioning surrounded the nature of personality – whether it arises from needs, traits, temperaments, or character, while others were concerned with the number of dimensions. Some argued for 10 (Guilford, 1949), others 12 (Cattell, 1946), and others for two or three (Eysenck, 1945). After decades of debate, researchers converged on five factors to parsimoniously encompass personality (Cattell & Mead, 2007; Costa & McCrae, 1992; Goldberg, 1999; Tupes & Christal, 1992).

The Five Factor Model (FFM) arose from factor analyses based upon the lexical hypothesis, which proposes that important differences in individuals are reflected in everyday language (Crowne, 2009). Large numbers of descriptive adjectives were given to respondents who rated their level of agreement with each item. Where responses to questions tended to converge, factor analysis was

used to identify clusters of responses which formed personality traits (Digman, 1990; Goldberg, 1993). These five factors emerged repeatedly from a range of different adjective pools (Cattell & Mead, 2007; Costa & McCrae, 1992; Goldberg, 1999; Tupes & Christal, 1992), leading some researchers to presume the FFM embodies the basic structure of personality (O'Connor, 2002; Widiger, 2017).

Observed to represent consistent patterns of thoughts, feelings, and behaviours across time, each of the five factors was dubbed a personality trait corresponding to an underlying personality structure (McAdams, 2009). Personality traits imply a level of both constancy and stability – an individual who scores high on a specific trait is expected to display corresponding thoughts, feelings and behaviours across different situations and across time (Roberts & DelVicchio, 2000).

The five traits are commonly labelled: Extraversion, Conscientiousness, Agreeableness, Openness to Experience, and Neuroticism (Costa & McCrae, 1992). Broadly speaking, Extraversion involves an increased engagement with the outside environment; Agreeableness reflects a propensity to get along with others; Conscientiousness concerns the need for industrious and orderly work, Neuroticism reflects the stability of emotion, and Openness reflects creative and intellectual engagement (Johnson & Ostendorf, 1993).

Thus, the FFM was born, producing one of the most widely used models for the prediction of behaviours in organisations (Boudreau, Boswell, & Judge, 1999; Bowling & Eschleman, 2010). Thought to represent universal features of the human species (McCrae & Terracciano, 2005) grounded in the human genome (Jang, Livesly, Angleitner, Reimann, & Vernon, 2002; Yamagata, et al., 2006), the FFM is now a prevalent and well-researched model which describes an underlying structure of personality. The success of this model is often pointed to as the cause of a resurgence in research and interest within personality psychology (Barrick, Mount, & Judge, 2001).

The advantage of traits as wide-ranging as in the FFM is their wide bandwidth. The downside, however, is their low fidelity (Smith, McCarthy, & Zapolski, 2009). To increase the ability of researchers to develop theory and predict criteria more effectively, researchers have offered sub-dimensions under each trait to add nuance and explanatory power. While there is considerable consensus regarding the FFM, there is far less agreement about the sub-dimensions under each. Table 1 gives 3 examples of FFM traits and sub-dimensions.

Table 1*Three Taxonomies of Personality Traits using the FFM*

| Personality Trait | Subdimensions | | |
|-------------------|--|----------------------------------|---|
| | NEO-PI-R | BFAS | BFI-2 |
| Openness | Fantasy Aesthetics Feelings Actions Ideals Values | Openness/Creativity Intellect | Intellectual Curiosity Aesthetic Sensitivity Creative Imagination |
| Conscientiousness | Competence Order Dutifulness Achievement Striving Self-Discipline Deliberation | Orderliness Industriousness | Order Self-Discipline Dutifulness |
| Extraversion | Warmth Gregariousness Assertiveness Activity Excitement Seeking Positive Emotion | Enthusiasm Assertiveness | Sociability Assertiveness Energy Level |
| Agreeableness | Trust Straightforwardness Altruism Compliance Modesty Tendermindedness | Politeness Compassion | Compassion Respectfulness Trust |
| Neuroticism | Anxiety Hostility Depression Self-consciousness Impulsiveness Vulnerability to stress | Withdrawal Volatility | Anxiety Depression Emotional Volatility |

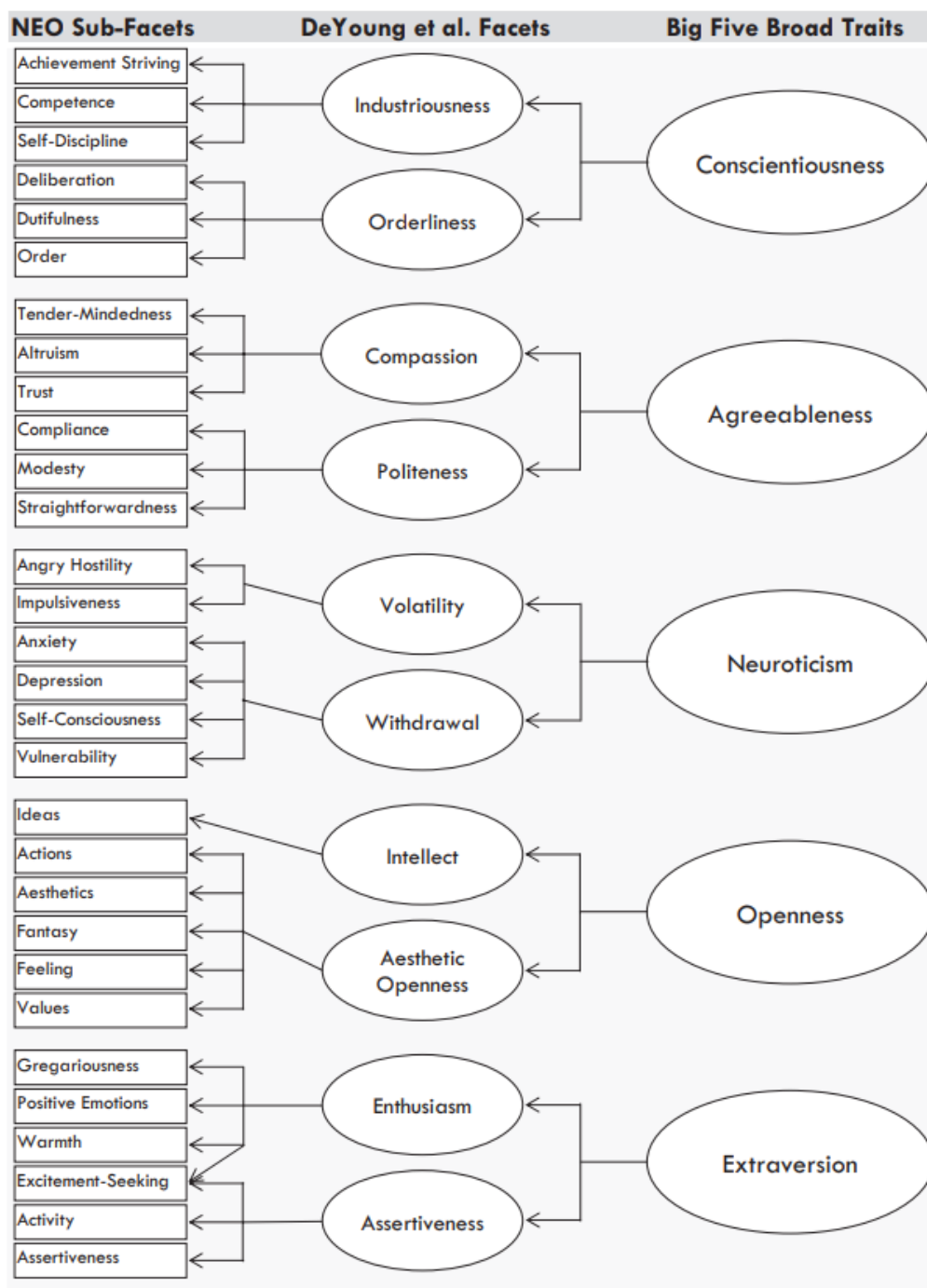
Note. NEO-PI-R = NEO Personality Inventory Revised (Costa & McCrae, 1992), BFAS = Big Five Aspect Scales (DeYoung, Quilty, & Peterson, 2007), BFI-2 = Big Five Inventory (Soto & John, 2017).

Recent research has been hindered by the proliferation of varying subdimensions. As a result, any body of research surrounding one classification system can be challenging to translate into expectations for results under alternative classification systems. Attempts to empirically uncover the sub-structures of personality traits have been undergone in recent years, however, and research into their comparative utilities is still in its infancy (Crowe, Lynam, & Miller, 2018; Roberts, Chernyshenko, Stark, & Goldberg, 2005; Watson, Stasik, Ellickson-Larew, & Stanton, 2015).

Building from the NEO and BFAS models of personality structure, a 6-2-1 hierarchical framework has been proposed to underlie each of the five factors (Judge, Rodell, Klinger, Simon, & Crawford, 2013). As described in Figure 1, each of the five personality traits can be split into two subdimensions, which describe the shared variance of the six dimensions below.

Figure 1

6-2-1 Hierarchical Representation of Personality Proposed by Judge et.al (pp 878, 2013)



As one would expect from several intercorrelated subdimensions, the separation between are not as clean as the diagram might suggest. Indeed, some subdimensions load equally between traits (e.g. – Excitement Seeking loads equally between Enthusiasm and Assertiveness) and others very clearly leaning towards one dimension (DeYoung, Quilty, & Peterson, 2007).

Alternative Five Factor Models

While decades of research have yielded a broad consensus upon the FFM, the five traits were derived from analyses of the language people use to define themselves and others (Digman, 1990; John, Naumann, & Soto, 2008; John & Srivastava, 1999). As such, they do not represent a theoretical perspective. Instead of replacing all previous methods, the FFM can be used to integrate a wide range of personality descriptive systems within a common framework.

To derive a model of personality on a biological-evolutionary basis, an alternative model aligning very closely with the FFM arose, called the Alternative Five (Zuckerman, 2002). This model comprised Sociability, Neuroticism-Anxiety, Aggression-Hostility, Impulsive Sensation-Seeking, and Activity (Zuckerman, 2005). Factor analytic investigations have since revealed the first four to closely align with Extraversion (Sociability), Neuroticism (Neuroticism-Anxiety), Agreeableness (Aggression-Hostility reversed), and Conscientiousness (Impulsive Sensation-Seeking reversed). The fifth, Activity, was subsumed by a latent variable marked by Extraversion (Aluja, Garcia, & Garcis, 2002; Angleitner, Riemann, & Spinath, 2004; Zuckerman, Kuhlman, Joireman, Teta, & Kraft, 1993). The Openness factor was decided to be a uniquely human trait, and thus did not meet the criteria for incorporation on a biological-evolutionary basis (Zuckerman, 1992).

In another biological model, an attempt to define personality traits through the interaction of neuro-behavioural systems has given rise to another five-factor model, comprising: Agentic Extraversion, Affiliative Extraversion, Anxiety, Fear, and Nonaffective Constraint (Depue & Lenzenweger, 2005). The Agentic and Affiliative Extraversion factors have since been shown to load primarily upon FFM Extraversion (Markon, Krueger, & Watson, 2005), representing two constituent subdimensions (DeYoung, Quilty, & Peterson, 2007). Affiliative Extraversion also has shown a secondary loading upon Agreeableness, aligning with models of affiliation as a product of both reward structures (associated with Extraversion) and social bonding systems (associated with Agreeableness; Depue & Morrone-Strupinsky, 2005). Anxiety and fear have been thought to represent two forms of avoidance behaviours associated with Neuroticism, and Nonaffective Constraint with Conscientiousness (Corr, DeYoung, & McNaughton, 2013; Depue & Lenzenweger, 2005; Markon, Krueger, & Watson, 2005; White & Depue, 1999).

A close alternative to the FFM is the 'Big 6,' or HEXACO model of personality. While HEXACO's Extraversion, Conscientiousness, and Openness to Experience traits are comparable to the FFM, HEXACO contains rotated variants of FFM Agreeableness and Neuroticism, named Agreeableness and Emotionality, and adds a sixth trait Honesty-Humility (Lee & Ashton, 2008; Saucier, 2009; Thalmayer, Saucier, & Eigenhuis, 2011). Honesty-Humility has been thought to be represented as a subdimension of Agreeableness (DeYoung, Quilty, & Peterson, 2007). Although correlations between the two dimensions are lower than would be expected if they tapped the same latent factor (Ludeke, et al., 2019), both instead appear to be subsumed by a socially-normative dimension of Agreeableness (Crowe, Lynam, & Miller, 2018).

Other Models of Personality

The FFM has also been used to integrate a range of other personality descriptive systems. One of the earlier models conceptualised personality as two biologically-based independent dimensions of temperament, Extraversion and Neuroticism, and later added a third dimension, Psychoticism (Eysenck & Eysenck, 1985). Where Extraversion and Neuroticism are like their FFM factors of the same names, Psychoticism appears to reflect a blend of low Conscientiousness and low Agreeableness (Goldberg & Rosolack, 1994).

Taking a 'bottom-up' approach to understanding personality, affective neuroscience sought to reflect distinct emotional systems in the form of six personality traits: Playfulness, Seeking, Caring, Fear, Sadness, and Anger (Panksepp, 2004). This model seeks to engage with evolutionarily relevant emotions to understand thoughts and behaviour (Panksepp & Biven, 2012). Playfulness has been shown to correlate most closely with FFM Extraversion and Agreeableness, Seeking with Openness to Experience, Caring with Agreeableness, Fear and Sadness with Neuroticism, and Anger with Neuroticism and Agreeableness (reversed; Davis & Panksepp, 2018; Montag & Davis, 2018).

The Dark Traits approach refers to a clustering of malevolent personality traits associated with socially aversive beliefs and behaviours (Moshagen, Hilbig, & Zettler, 2018). While there have been some recent additions to the dark traits, including sadism and spitefulness, most research has focused on the Dark Triad of personality: narcissism, Machiavellianism, and psychopathy (Furnham, Richards, & Paulhus, 2013; Jonason, Webster, Schmitt, Li, & Crusel, 2012; Paulhus & Williams, 2002; Muris, Merckelbach, Otgaar, & Meijer, 2017). Considering the malevolent heart of the dark triad, it is of no surprise that these traits have been associated with a wide range of deviant behaviours within organisations (Jonason, Wee, Li, & Jackson, 2014; O'Boyle, Forsyth, Banks, & McDaniel, 2012; Spain, Harms, & LeBreton, 2014; Spurk, Keller, & Hirschi, 2016). Recent research has, however, found that the FFM captures much of the variance of the dark triad (O'Boyle, Forsyth, Banks, Story, & White,

2015), and predicts workplace behaviours better than the dark triad (DeShong, Grant, & Mullins-Sweatt, 2015).

Reinforcement Sensitivity Theory.

One of Eysenck's students, Jeffrey Gray, sought to build a neurobiological model of behaviour and produced Reinforcement Sensitivity Theory. While multiple motivational systems control behaviour, Gray identified three primary systems which controlled approach and avoidance behaviours (Gray & McNaughton, 2003; Pickering & Gray, 1999). The Behavioural Approach System (BAS) reflects a sensitivity to reward and subsequent drive to move towards such rewards. The Behavioural Inhibition System (BIS) and Fight, Flight, and Freeze System (FFFS) on the other hand reflect a sensitivity to punishment and subsequent drive to avoid such punishments. Two of the big five traits appear to reflect these approach and avoidance systems: Extraversion and Neuroticism respectively (Corr, DeYoung, & McNaughton, 2013).

Evidence for this convergence has come from a range of sources. From questionnaire research, Extraversion appears to be an excellent indicator of a latent variable marked by measures of reward sensitivity, and Neuroticism appears to be an excellent indicator of a latent variable marked by measures of punishment sensitivity (Clark & Watson, 2008; Elliot & Thrash, 2002; Gable, Reis, & Elliot, 2003; Zelenski & Larsen, 1999). In more recent research, brain structures and networks responsible for approach/avoidance and reward/punishment have been found to overlap with the primary neural correlates of Neuroticism and Extraversion (DeYoung, 2010; DeYoung & Gray, 2009).

Behavioural Approach System and the Five Factor Model.

Although the BAS has been modelled by some researchers as a singular construct (Reuter, Cooper, Smillie, Markett, & Montag, 2015; Smederevac, Mitrovic, Colovic, & Nikolasevic, 2014), more recent developments have shown that the elements within the BAS actually perform multidimensionally (Corr & Cooper, 2016). Three subscales of BAS have since been developed, separating a determined striving for goals (Drive), a positive affective response to reward (Reward Responsiveness), and a desire for novel rewards and their spur of the moment pursuit (Fun Seeking; Carver & White, 1994; Wilson, Barrett, & Gray, 1989).

Providing a neuropsychological account for the major systems of approach and avoidance, it is not a stretch of the imagination to expect this trait theory to overlap with the FFM. Indeed, many of the subscales of the BAS have unique associations with each of the FFM traits (Corr & Cooper, 2016) and it's sub-dimensions (Quilty, DeYoung, Oakman, & Bagby, 2014). As both Extraversion and the BAS relate strongly to approach behaviour, they show reasonable convergent validity (Carver & White, 1994; Pickering, 2004; Smillie, Pickering, & Jackson, 2006; Wacker, Mueller, Hennig, & Stemmler,

2012), both tapping a single latent factor (Elliot & Thrash, 2002; Gable, Reis, & Elliot, 2003; Zelenski & Larsen, 1999). Furthermore, just as the BAS has been shown to operate multi-dimensionally, three dimensions of Extraversion have been shown to correspond to the three BAS dimensions (Quilty, DeYoung, Oakman, & Bagby, 2014), as described by Table 2. As the separation of BAS/Extraversion subdimensions have important ramifications on the ways an individual interacts with the world, particularly in organisations, we outline the differences below.

Table 2

Convergence of BAS and Extraversion Subdimensions

| BAS Process | Description | FFM Correlates | Extraversion Subdimension |
|------------------------------|--|---|---------------------------|
| Reward Responsiveness | Positive affective response toward rewards | Agreeableness (+) Neuroticism (-) | Enthusiasm |
| Drive | Determined striving for goals | Agreeableness (-) Conscientiousness (+) Neuroticism (-) | Assertiveness |
| Sensation Seeking | Desire for novel rewards and openness to their spontaneous pursuit | Agreeableness (-) Conscientiousness (-) | Impulsivity |

Note. All three BAS sub-dimension had positive associations with Extraversion and Openness/Intellect.

BAS Reward Responsiveness and Enthusiasm.

Strong cases have been made for Extraversion's role in approach and exploratory behaviour. Specifically relating to a sensitivity to reward, exploratory/approach behaviours have been thought to arise from the enjoyment of actual or imagined goal attainment (Berridge, Robinson, & Aldrige, 2009). While Extraversion in general has shown to predict the amount of positive emotions that people experience in response to incentive stimuli (Smillie, Cooper, Wilt, & Revelle, 2012), the Enthusiasm sub-dimension from the BFAS FFM has been shown to be specifically related to happy and pleased feelings (Smillie, DeYoung, & Hall, 2015). It is this hedonic element that drives approach behaviours, through the enjoyment of the path towards a salient goal or in the actual attainment of a goal/reward (DeYoung, 2015).

Strong cases have also been made for the involvement of Extraversion and reward responsiveness in affiliative behaviours (Depue & Morrone-Strupinsky, 2005). In line with such conceptualisations, both BAS Reward Responsiveness and BFAS Enthusiasm have been associated positively with Agreeableness (Corr & Cooper, 2016), and in particular the Compassion sub-dimension (Quilty, DeYoung, Oakman, & Bagby, 2014). Furthermore, BAS reward responsiveness has been

associated with cooperative motives with others (Krupic, Gracanin, & Corr, 2016) and quality relationships as a part of long-term lifestyles (Krupic, Banai, & Corr, 2017). Taken together, this would indicate the hedonic processes associated with BAS Reward Responsiveness and Enthusiasm may underpin Extraversion's association with social rewards.

BAS Drive and Assertiveness.

A determined striving for goals has been thought to underpin both the Assertiveness sub-dimension of Extraversion, and the 'Drive' sub-dimension of the BAS (Krupic & Corr, 2017; Quilty, DeYoung, Oakman, & Bagby, 2014). This 'agentic' form of Extraversion has been thought to drive approach behaviours towards goals through a sensitivity to incentive reward (Berridge, Robinson, & Aldrige, 2009). In line with theory, Assertiveness has been uniquely associated with feelings of arousal, energy, and vigour in response to incentive rewards (Smillie, DeYoung, & Hall, 2015).

Goal-driven individuals are often thought to have a driven, industrious, and assertive nature. In line with such a conceptualisation a latent factor indicated by both Assertiveness and BAS Drive has been positively associated with Conscientiousness, and in particular the Industriousness sub-dimension (Corr & Cooper, 2016; Quilty, DeYoung, Oakman, & Bagby, 2014). The same latent factor also shows a weak positive association with Agreeableness at the trait level, and diverging associations at the sub-dimension level, holding a positive association with the Compassion sub-dimension, and a negative association with the Politeness sub-dimension (DeYoung, Quilty, & Peterson, 2007; Weisberg, DeYoung, & Hirsh, 2011).

BAS Sensation Seeking and Impulsivity.

There has been a lack of conceptual agreement within the literature regarding whether the BAS should reflect Extraversion (Depue & Collins, 1999; Pickering & Gray, 1999; Smillie, Pickering, & Jackson, 2006) or Impulsivity (Torruibia, Avila, Molto, & Caseras, 2001). The cause of this contention may have arisen early in the development of BAS theory, where Impulsivity was conceptualised to reflect BAS without providing any strong evidence for the claim (Pickering & Smillie, 2008). Recent research has shed some light on this area, showing the Sensation Seeking subdimension of the BAS is reflected in the impulsive subdimensions of Extraversion (Krupic & Corr, 2017; Quilty, DeYoung, Oakman, & Bagby, 2014; Whiteside & Lynam, 2001).

Specifically, the form of Impulsivity associated with the BAS and Extraversion reflects a desire for novel rewards and openness to their spontaneous pursuit (Quilty & Oakman, 2004; Whiteside & Lynam, 2001). Thought to be partially driven by a dysregulation of impulses (Zuckerman, Kuhlman, Joireman, Teta, & Kraft, 1993), this form of impulsivity has been significantly related to externalising, disinhibition, and antagonism disorders above other Extraversion sub-dimensions (Watson, Stasik,

Ellickson-Larew, & Stanton, 2015), alongside problematic levels of risky behaviour engagement above other forms of impulsivity (Cyders, et al., 2007).

Within the FFM, the Impulsivity factor marked by both BAS Sensation Seeking and Extraversion's Excitement Seeking subdimensions have very different associations than those of BAS Drive/Assertiveness and BAS Reward Responsiveness/Enthusiasm. Where BAS Reward Responsiveness has a positive association with Agreeableness, and Drive has a positive association with Conscientiousness, Sensation seeking has a negative association with both FFM traits (Hofmans, Kuppens, & Allik, 2008; Križanić, Greblo, & Knezovic, 2015; Segarra, Poy, Lopex, & Molto, 2014; Smillie, Pickering, & Jackson, 2006; Smits & Stalikas, 2006).

Avoidance and the FFM.

All traits reflecting a sensitivity to punishment tend to fall within the Neuroticism trait (DeYoung, 2010b), and as such Neuroticism appears to be an excellent indicator of a latent variable marked by measures of punishment sensitivity (Clark & Watson, 2008; Elliot & Thrash, 2002; Gable, Reis, & Elliot, 2003; Zelenski & Larsen, 1999). Thought to be linked to detecting mismatches between current actions and goal attainment, the sub-dimensions of Neuroticism each exhibit a unique form of punishment sensitivity.

Reflecting a propensity for passive avoidance, the BIS is evident when two motivations or goals come into conflict, for example: wanting to talk to someone but fearing rejection. In the face of such conflicts, the BIS tends to produce reduced action, increased risk assessment, and to contribute to processes underlying anxiety and depression (Corr, DeYoung, & McNaughton, 2013). The first Neuroticism subdimension, labelled Withdrawal, incorporates traits of anxiousness, depression, vulnerability, and self-consciousness (DeYoung, Quilty, & Peterson, 2007), making it a likely candidate for BIS sensitivity. Supporting an idea of risk assessment and goal comparisons, Withdrawal predicts amygdala activity when both approaching and withdrawing from stimuli (Cunningham, Arbuckle, Jahn, Mowrer, & Abduulijalil, 2010).

Reflecting a propensity for active avoidance, the Flight-Fight-Freeze System (FFFS) tends to produce defensive aggression and panic in the face of aversive stimuli (Corr, DeYoung, & McNaughton, 2013). The second Neuroticism subdimension, labelled Volatility, incorporates traits of emotional lability, irritability, and anger (DeYoung, Quilty, & Peterson, 2007), making it the likely personality candidate for FFFS sensitivity. In line with this conceptualisation, Volatility predicts amygdala activity in the face of negative stimuli (Cunningham, Arbuckle, Jahn, Mowrer, & Abduulijalil, 2010).

In sum, the FFM describes a stable structure of personality expressed in a range of different models describing how people tend to interact with the world. As personality processes influence a wide range of behaviour applicable to the organisational context (Thielmann, Spadaro, & Balliet, 2020), they provide a potentially useful indicator for how employees may tend to act in a range of situations. As such, we explore how personality influences organisational behaviours in Chapter 2.

Chapter Two: Predicting Work Behaviour

Predicting who will be the ideal fit for a given job has long been the challenge of human resource teams. To contribute well to organisational success, potential employees must not only perform their technical job-related tasks well but behave in a way that helps the overall organisation flourish (Bolino & Turnley, 2005; Organ, Podsakoff, & MacKenzie, 2006). As such, researchers have suggested that job performance is composed of three broad domains: task performance, organisational citizenship behaviours, and counter-productive work behaviours (Dalal, 2005).

The most obvious is task performance, which refers to the effectiveness with which an individual engages in activities contributing to the organisation's direct outputs. Perhaps less obviously, the other two contribute to organisational success by helping or hurting the context that facilitates the performance of task-related processes (Borman & Motowidlo, 1997; Hartnell, Ou, Kinicki, Choi, & Karam, 2019). Discretionary behaviours which promote the effective functioning of the organisation define organisational citizenship behaviours (OCBs; Organ & Podsakoff, 2006). Conversely, employee behaviour that goes against the legitimate interests of an organization defines counterproductive work behaviours (CWBs; Sackett, Berry, Wiemann, & Laczko, 2006).

Owing to the contribution of these contextual behaviours to the overall success of an organisation, research has focused attention on OCB and CWB expression (Balducci, Schaufeli, & Fraccaroli, 2011; Fox, Spector, Goh, Bruursema, & Kessler, 2012), their antecedents (Fox, Spector, & Miles, 2001; Organ, Podsakoff, & MacKenzie, 2006), and their outcomes (Podsakoff, Blume, Whiting, & Podsakoff, 2009). As CWBs and OCBs are, by definition, volitional, they are likely to be influenced by personality (Ilies, Fulmer, Spitzmuller, & Johnson, 2009; Mount, Ilies, & Johnson, 2006). Although early reviews of personalities' effect upon job-related criterion were quite pessimistic (Guion & Gottier, 1965; Reilly & Warech, 1993), more recent developments have been much more convincing. The following section will look at trait models of personality and their relationship to work performance.

Predicting Counterproductive Work Behaviours (CWBs)

Many organisations expend large amounts of resources in attempts to predict potential CWBs at the time of hire (Ones, 2002). A host of deleterious effects for the organisation and its stakeholders arises from CWBs, including dramatic revenue loss (Aquino, Lewis, & Bradfield, 1999), damage to the workplace and decreased productivity (Lee & Allen, 2002).

CWBs are defined as behaviours an employee engages in which go against the interests of an organisation (Sackett, Berry, Wiemann, & Laczko, 2006). Having such a broad definition, a large pool of

behaviours is included within this umbrella, including: theft of property, physical abuse of others, intentionally working slowly, or gossiping (Gruys & Sackett, 2003). However, poor performance from insufficient skill, or behaviours with unintended negative consequences, would not be considered CWBs.

A key element of CWBs is that the action is purposeful, that is, the employee makes a choice to behave in a manner specifically intended to harm the organisation or the people within the organisation (Lee & Allen, 2002). As CWBs are volitional, they are likely to be influenced by personality-related more than skill-related factors (Mount, Ilies, & Johnson, 2006). It is of no surprise that the Big Five personality traits are associated with CWBs. Low Conscientiousness has been shown to be the strongest predictor of the broader class of CWBs, followed by low Agreeableness and high Neuroticism (Ones, Viswesvaran, & Schmidt, 2003; Salgado, 2002). Research has also demonstrated the utility of the Big Five traits in the prediction of a variety of more specific CWBs.

Many typologies of CWBs exist, with some dividing behaviours into lacking motivation to conform to expectations, or motivated action to violate those expectations (Kaplan, 1975). Others separate organisationally targeted CWBs from interpersonally targeted CWBs (Bennett & Robinson, 2000; Dalal, 2005), which has also been developed into a four dimension model by recognising minor vs serious transgressions (Robinson & Bennett, 1995), as described below in Figure 2.

Figure 2

Typology of Deviant Workplace Behaviour and examples (Robinson & Bennett, 1995, pp. 565)

| | | ORGANISATIONAL | |
|-------|--|--|--|
| | | <i>Production Deviance</i> | <i>Property Deviance</i> |
| | | <ul style="list-style-type: none"> • Leaving early or coming in late • Taking excessive breaks • Calling in sick when not • Hiding from work | <ul style="list-style-type: none"> • Stealing equipment and merchandise • Stealing money • Accepting kickbacks • Misusing expense accounts |
| MINOR | | <i>Political Deviance</i> | <i>Personal Aggression</i> |
| | | <ul style="list-style-type: none"> • Showing favouritism • Competing in a nonbeneficial way • Blaming others for own mistakes • Gossiping about co-workers | <ul style="list-style-type: none"> • Unjustifiably firing employee • Endangering others by reckless actions • Sexual harassment • Physical abuse |
| | | INTERPERSONAL | |
| | | SERIOUS | |

While CWBs have been described along other dimensions, such as task relevance and seriousness (Gruys & Sackett, 2003; Robinson & Bennett, 1995), the interpersonal-organisational dimensions have consistently arisen in research. Personality has also been shown to be a useful predictor at this level. Specifically, Agreeableness has been found to be more predictive of interpersonally-focused CWBs, while Conscientiousness was more predictive of organisationally-focused CWBs (Berry, Ones, & Sackett, 2007; Bolton, Becker, & Barber, 2010). Conceptually making sense, Agreeableness has ties to cooperative and trustful behaviours, two key parts of successful interpersonal relationships (John & Srivastava, 1999). Conscientiousness has ties to dependability and drive towards achievement, and those high in Conscientiousness are more likely to adhere to an organisation's rules and normative behaviours (Mount, Ilies, & Johnson, 2006).

Much like breaking the concept of CWBs into its constituent parts, it has also been suggested that the sub dimensions of the five factors may provide more in-depth information (Reynolds & Clark, 2001). Recent research supports this stance, evidencing the utility of considering sub-dimension relationships with work behaviours (Helle, et al., 2018). When analysing the two strongest predictors of CWBs, Conscientiousness and Agreeableness, significant divergences occur within CWB's sub dimensions. Where Agreeableness showed a stronger relationship with interpersonally-focused CWBs than other traits, this only held true for the subdimensions associated with compassion for others (Helle, et al., 2018). Conversely, Conscientiousness's associations with organisationally focused CWBs was stronger than any of its constituent sub-dimensions. However, a wide range of individual sub-dimension associations emerged – for example the self-discipline subdimension was weakly associated with interpersonally-focused CWBs ($r = -.17$) but the achievement-striving subdimension was moderately ($r = -.47$) associated with organisationally focused CWBs. It appears that by avoiding the inclusion of criterion-unrelated behaviours, an increased validity may be the by-product (Crowe, Lynam, & Miller, 2018; MacCann, Duckworth, & Roberts, 2009).

CWBs have also been broken down into a five-dimension classification system comprising: abuse (harmful behaviours targeting other individuals), production deviance (purposefully conducting one's job deleteriously), sabotage (damaging property), theft (stealing goods), and withdrawal (being late or absent; Spector, et al., 2006). Abuse, an inter-personally directed class of CWBs, was negatively associated with Agreeableness. Of the remaining organisationally focused CWBs, Conscientiousness was only related to sabotage and withdrawal. Interestingly, theft was related negatively to Extraversion, and production deviance with Openness (Bolton, Becker, & Barber, 2010). At this level the relationships between personality and criteria, although revealing some specificity, did not yield incremental predictive relationships above combined scores of CWBs.

The relationship between personality and specific types of CWBs becomes even more tenuous the more granular the analysis becomes. An eleven-dimension typology exists (Gruys & Sackett, 2003), further breaking down CWBs categorically. While most relationships between CWB dimensions and personality traits at this level of analysis have been shown to be non-significant, some personality-criteria correlations are substantial (Hafidz, 2012). Agreeableness was negatively related to theft, misuse of information, and poor quality work, Conscientiousness was negatively related to destruction of property, misuse of information, poor quality work, substance use, and inappropriate verbal actions, Neuroticism was negatively related with poor quality work, and Openness with theft (Hafidz, 2012). As the strength of these relationships was found to be weaker than at broader levels of analysis, and most personality-CWB type relationships were non-significant, this may not be a useful level of analysis for prospective selection purposes (Ones & Viswesvaran, 1996).

Taken in sum, broader measures of CWBs such as the single dimension or two-dimension (interpersonally or organisationally focused) typologies appear to be most useful for identifying employees who may be hurtful to an organisation. Furthermore, key personality indicators have emerged to align with CWBs. However, it is not merely enough to know which personality traits are correlated with which behaviours as benefits and trade-offs are conferred to individuals at all levels of personality and in a range of situations (DeYoung & Weisberg, 2019). Next, we will unpack a selection of the mechanisms for how personality may predict CWB.

How Does Personality Predict CWBs?

There are many ways in which personality traits may influence the occurrence of CWBs, and organisational behaviours in general. This section will touch on some of the mechanisms by which personality may influence organisational behaviours. One mechanism is through personality traits representing internal biological states predisposing an individual towards or away from engagement in CWBs (Allen & DeYoung, 2017). For example, dopaminergic function in the brain has been related to Extraversion and impulsive behaviour (DeYoung, 2010; DeYoung, 2013; Wacker & Smillie, 2015), which then predispose individuals to impulsive types of CWBs (Ramirez, 2015).

Personality may also act as a determinant for attitudes towards CWBs. One attitude that seems to be sensitive to influence from personality is beliefs about consequences. Extraversion and Openness have been positively associated with the need to acquire approval from others (Wilmot, DeYoung, Stillwell, & Kosinski, 2016). Individuals high in both traits care what others think of them and may adjust their behaviour to enhance others perception of them. Thus, those high in Extraversion and Openness may refrain from engaging in CWBs to avoid socially imposed consequences (Cullen & Sackett, 2003).

Personality also influences mood and ensuing workplace behaviours. Extraversion has been associated strongly with both positive affect (Smillie, DeYoung, & Hall, 2015) and behavioural activation (Quilty, DeYoung, Oakman, & Bagby, 2014). Neuroticism, conversely, has been associated strongly with both negative affect and behavioural inhibition (Allen & DeYoung, 2017). Perhaps this is why positive mood has been associated with increased helping behaviours (Kayser, Greitemeyer, Fischer, & Frey, 2010), and negative mood has been associated with increased CWBs (Clark, 2010).

The associations Extraversion and Neuroticism have with positive and negative affect may also shed light on perceptions of job satisfaction. One theory is that those higher in Extraversion will tend to make more positive evaluations of the work environment and in turn be more satisfied with their jobs. Conversely, those individuals high in Neuroticism will tend to make more negative evaluations of the work environment (Cullen & Sackett, 2003). Backing this theory, Extraverts have a predisposition to focus on what is positive, (Fox & Moore, 2019) and this in turn has been associated with job satisfaction (Harari, Thompson, & Viswesvaran, 2018).

Personality traits may also predispose individuals to CWBs through reactions to a range of organisational events and features. One example of this is the view of CWBs as a form of ineffective coping with work stressors. Here, the relationship between work stress and CWBs was found to be stronger among workers who were low in Conscientiousness or high in Negative Affectivity, and weaker among workers who were high in Conscientiousness or low in Negative Affectivity (Bowling & Eschleman, 2010). This was conceptualised as those who were low in Conscientiousness and high-Negative Affectivity having a tendency for CWBs through a lowered threshold of work stress, while high-Conscientiousness/low-Negative Affectivity individuals may only resort to CWBs in the face of extreme work stressors.

Predicting Organisational Citizenship Behaviours (OCBs)

OCBs have been a topic of great interest for the research world (Dalal, 2007; LePine, Erez, & Johnson, 2002; Podsakoff, Whiting, Podsakoff, & Blume, 2009), with some of the earliest work pointing to OCBs as a necessary part of organisational behaviours above and beyond prescribed behaviours which contribute positively to organisational effectiveness (Bateman & Organ, 1983; Katz, 1964).

There are quite a few reasons to suspect that CWBs and OCBs are opposite ends of a single behavioural spectrum. Semantically, OCBs are intended to benefit an organisation, and CWBs are intended to harm. Both bodies of literature have individually-focused versus organisationally-focused targets (Berry, Ones, & Sackett, 2007; Bolton, Becker, & Barber, 2010; Chiaburu, Oh, Berry, Li, & Gardner, 2011). Both also show opposite correlations with a range of measures, including job

satisfaction, organisational commitment, organisational justice, trait Conscientiousness, and affect (Dalal, 2005).

Avoiding construct redundancy however, OCBs and CWBs have been shown to be separable constructs (Spector, Bauer, & Fox, 2010). The relationship between OCBs and CWBs, while certainly negative (Dalal, 2005), is not strong enough to indicate they are measuring the same construct (Cohen, 1992). When controlling for methodological artefacts, such as halo effects from supervisor ratings or the inclusion of items which are reverse coded for the other construct, CWBs have been found to have dramatically reduced (Dalal, 2005; Spector, Bauer, & Fox, 2010), non-significant (Marcus, Schuler, Quell, & Humpfer, 2002; Miles, Borman, Spector, & Fox, 2002), or even positive relationships with OCBs (Dalal, Lam, Weiss, Welch, & Hulin, 2009; Fox, Spector, Bruursema, Kessler, & Goh, 2007; Spector, Bauer, & Fox, 2009).

Furthermore, should OCBs and CWBs be measuring the same latent factor, we should see equal and opposite effect sizes (strong positive association with OCBs concurrent with strong negative associations with CWBs, etc.) in the research (Dalal & Carpenter, 2018). However, divergences have been found in a range of areas. From a dispositional standpoint, trait Conscientiousness has been found to have stronger relationships with CWBs than OCBs (Berry, Ones, & Sackett, 2007; Bolton, Becker, & Barber, 2010; Dalal, 2005).

Different affective processes have also been shown to independently drive OCBs vs CWBs, such that positive emotions drive OCBs and negative emotions drive CWBs (Dalal, Lam, Weiss, Welch, & Hulin, 2009; Spector & Fox, 2002; Venkataramani & Dalal, 2007). Positive and negative affectivity have been shown to be strongly related but not identical to the personality traits of Extraversion and Neuroticism (Kaplan, Bradley, Luchman, & Haynes, 2009). However, Extraversion has only displayed a weakly positive association with OCBs (Chiaburu, Oh, Berry, Li, & Gardner, 2011).

Openness has emerged as a strong predictor of OCBs (Chiaburu, Oh, Berry, Li, & Gardner, 2011). Furthermore, like CWBs, Conscientiousness and Agreeableness are two consistent forecasters of OCBs (Hurtz & Donovan, 2000; Ilies, Fulmer, Spitzmuller, & Johnson, 2009; Organ & Ryan, 1995). Also similar to CWBs, it was thought that particular personality traits may also be predictive of types of OCBs to the degree that they are thematically compatible, such that Agreeableness would be more related to interpersonally-focused OCBs, and Conscientiousness related to organisationally-focused OCBs (Ilies, Fulmer, Spitzmuller, & Johnson, 2009). Conflicting evidence has arisen, however. Recent meta-analyses revealed that personality traits predict organisationally and interpersonally-focused behaviours to similar degrees (Chiaburu, Oh, Berry, Li, & Gardner, 2011).

Interpersonally and organisationally focused OCBs have been subsumed by a prosocial conceptualisation of citizenship behaviours (Allen & Rush, 2001; Organ, Podsakoff, & MacKenzie, 2006; Van Dyne, Cummings, & McLean Parks, 1995). Prosocial OCBs are directed towards both the organisation and individuals within an organisation to contribute to the social and psychological context of an organisation (Organ, Podsakoff, & MacKenzie, 2006). Here, prosocial OCBs were best predicted by a joint effort between stable and accountable behaviour (Conscientiousness), a sensitivity to the needs of others (Agreeableness), and emotional stability (Neuroticism reversed; Chiaburu, Oh, Berry, Li, & Gardner, 2011).

In contrast to prosocial OCBs, Openness and Extraversion uniquely predict a different form of OCB: proactive OCBs. Proactive OCBs enhance the organisation by bringing about positive change (Allen & Rush, 2001; Organ, Podsakoff, & MacKenzie, 2006; Van Dyne, Cummings, & McLean Parks, 1995). Here proactive OCBs were best predicted by a joint effort between inquisitiveness and learning (attributed to Openness), dominance (attributed to Extraversion), and agentic drive (both Openness and Extraversion; Chiaburu, Oh, Berry, Li, & Gardner, 2011; Fuller & Marler, 2009).

These two groupings of the FFM traits are not new - originally labelled Alpha (Neuroticism, Agreeableness, and Conscientiousness) and Beta (Extraversion and Openness; Digman, 1997), and more recently labelled Stability and Plasticity respectively (DeYoung, 2006). These meta-traits represent two tendencies for interacting with the world: plasticity with behavioural engagement, and stability with behavioural restraint (DeYoung & Gray, 2009; DeYoung, Peterson, & Higgins, 2002). From this view, it is conceivable that an individual may be more likely to engage in proactive OCBs by virtue of an increased tendency to engage with exploratory behaviour in general. Likewise, an individual may engage in prosocial OCBs by virtue of an increased tendency to promote a stable social and organizational environment (Hirsh, DeYoung, & Peterson, 2009).

In another typology, OCBs were conceptualised to comprise five sub-dimensions: altruism (helping behaviours targeted at co-workers experiencing work-related problems), conscientiousness (exceeding work-related expectations), courtesy (polite manners), sportsmanship (tolerating inevitable inconveniences of work), and civic virtues (participation in the wider organisation beyond the demands of the job; (Podsakoff, MacKenzie, Paine, & Bachrach, 2000). Civic virtue was related positively to Extraversion and Conscientiousness, and non-significantly to the other personality traits. The remaining four dimensions of OCBs were positively related to Agreeableness, Conscientiousness, Extraversion, and Openness, and negatively with Neuroticism (Mahdiun, Ghahramani, & Sharif, 2010; Singh & Singh, 2009). However, relationships between personality traits and the composite measure of OCB held stronger relationships than those at the subdimension level.

In sum, significant relationships have emerged between personality factors and a range of helping and hurting behaviours in organisations. Reflecting a similar conclusion in personality psychology (Ones & Viswesvaran, 1996), broader measures of helping and hurting behaviours appear to be of the most utility for both prediction and explanation purposes. Personality predictors are not without limitation, however. In the next section are discussions surrounding issues of measurement and heterogeneity.

Limitations in Measurement of Personality and Behaviour

The measurement of personality has been an ever-evolving concept. The assessment and understanding of personality are not new concepts. Humans have explored a wide range of models attempting to understand and assess the differences between one another. In modern approaches, most instruments involve subjective self-report questionnaires or rating scales indicating an individual's level of agreement with a self-descriptive item.

The measurement of personality rests upon a few assumptions. The first assumption is that personality exists and is measurable (Hanson, 1993). It has been argued that individuals interpret and respond to items and the world in unique ways (Grice, 2015), and that any measures of personality will contain distortions due to the uniqueness of individuals within any pool of participants (Krause, 2013). Others have countered this claim by using enormous sample pools across a wide range of cultures to average out distortion effects (McCrae & Costa, 1997); by analysing biological processes not susceptible to self-report distortions (DeYoung, 2010), and by looking at factors related to genetic models (Jang, Livesly, Angleitner, Reimann, & Vernon, 2002; Loehlin, 1998).

Early research into the structure of personality by these different approaches produced a wide variety of traits identifying consistent patterns of emotions, thoughts, and behaviours, while also allowing for individual variation. However, this problem has been largely eliminated with the convergence of models to an overall set of five broad factors (Ludeke, et al., 2019)

An important assumption made by these models is that personality is stable, at least to some extent, across time and situations, allowing for the prediction of future behaviour (Roberts & DelVecchio, 2000). This point draws the attention of employers who want to predict future job performance. While some have argued that behaviour is sensitive to context (Sheldon, Ryan, Rawsthorne, & Ilardi, 1997), changing circumstance (Sackett & Walmsley, 2014), and intentions (Hudson & Fraley, 2015), others argue that variations in behaviour are a result of temporary states and adaptations to the environment rather than variations in personality (DeYoung, 2015; McAdams, 2009).

Another limitation in the measurement of personality is the utility of the measure. In isolation, most modern personality assessment scores are impossible to interpret. A score of 88 on an Extraversion scale yields no insight into how outgoing an individual may act in the future. However, when compared against an extensive pool of scores, a context may be given through standardised comparisons (e.g. through percentile or z scores). A score of 88 may mean an individual is more extraverted than 67% of the population, for example. Furthermore, the construction of a given personality assessment also gives context to an individual's score. The interpretation and use of personality assessments affects the degree to which they are of use to the organisation.

In sum, the measurement of personality is limited to self-reported tendencies towards specific thoughts, feelings, and behaviours aggregated over time. Employers may predict how an individual may perform a job in the future compared to other candidates. However, it may not accurately predict behaviour at any given time or circumstance.

Limitations in Levels of Analysis

A debate has emerged contesting whether to assess personality at the trait or sub-dimension level. Dubbed the fidelity-bandwidth dilemma (Ones & Viswesvaran, 1996), contention surrounds whether fine-grained personality variables or broader personality variables are appropriate for personnel selection purposes. One side of this argument is that analysis at the trait level may suppress important relationships at the sub-dimension level. An example of this resides within research into FFM sex differences.

The measurement of personality displays robust sex differences (McCrae & Terracciano, 2005), such that women tend to score higher on Agreeableness and Neuroticism than men (Costa & McCrae, 2001; Feingold, 1994). Women also tend to be significantly more Extraverted than men, however only slightly. This small effect size could be due to the existence of gender differences at the subdimension level. While men tend to score higher in agentic aspects of Extraversion, women tend to score higher in affiliative aspects of Extraversion (Weisberg, DeYoung, & Hirsh, 2011). Similar divergences have been found in Openness and Conscientiousness, such that undetectable sex differences have been found at the trait level, but significant and divergent differences at the aspect level. As such, any personality-criterion relationship investigations should also consider sex differences.

Also important for work performance, sub-dimensions of personality have been shown to have divergent relationships with OCBs and CWBs (Anglim, Lievens, Everton, Grant, & Marty, 2018; Helle, et al., 2018). When sub-dimensions show diverging effects on a criterion, important sub-

dimension-criterion relationships will be suppressed when looking at the trait level (Paulhus, Robins, Trzesniewski, & Tracy, 2004; Tabachnick & Fidell, 2001).

Extraversion's affiliation-related subdimensions show incrementally positive associations to OCBs over the singular measure of Extraversion (Helle, et al., 2018). Conversely, the agentic-related subdimensions show attenuated to non-significant associations to OCBs. Within Agreeableness, only the subdimensions relating to Compassion and Empathy (Crowe, Lynam, & Miller, 2018; DeYoung, Quilty, & Peterson, 2007) were significantly related to OCBs (Helle, et al., 2018).

The final limitation of examining trait by criterion relationships is the lack of acknowledgement of traits acting in concert. The interactions between varying levels of traits have been shown to have incremental validity above traits alone. Specifically, Conscientiousness and Agreeableness have been shown to moderate the relationship between Neuroticism and CWBs, such that the Neuroticism-CWB relationship is weaker among workers who are high in either Conscientiousness or Agreeableness than workers who are low in either trait (Bowling, Burns, Stewart, & Gruys, 2011). CWBs are also least likely to happen when pairs of either Conscientiousness, Agreeableness, or Neuroticism are both high, but low levels on either trait pair relate to increased CWB to levels comparable to individuals low on both traits (Jensen & Patel, 2011). Within the HEXACO model, the relationship between Honesty-Humility and workplace deviance has been shown to be stronger amongst workers who are high on Extraversion than those low on Extraversion (Oh, Lee, Ashton, & de Vries, 2010).

These findings have not only been found in relation to CWBs, but also in the field of work performance. Even when controlling for the main effects of Emotional Stability and Extraversion, the statistical interaction between these two traits is incrementally predictive of work performance (Judge & Erez, 2007). In workers who are highly conscientious, individuals who were also low in Agreeableness received lower job performance ratings than workers who were high in Agreeableness (Witt, Burke, Barrick, & Mount, 2002). The direction of relationship between Extraversion and job performance has been shown to be controlled by the level of Conscientiousness, such that additional units of Extraversion lead to increased performance in individuals high in Conscientiousness, but lowered performance in individuals low in Conscientiousness (Witt, 2002).

As the effect of traits acting in concert is a significant addition to understanding and predicting workplace behaviours, we now turn to a model of personality built on the interactions between traits and discuss its utility in the workplace.

Chapter Three: Circumplex Models of Personality

The interactions between personality traits appear to be a significant addition to the prediction of workplace behaviours. One set of models of personality which brings together interactions between traits in a parsimonious way are circumplex traits (Hofstee, de Raad, & Goldberg, 1992). Unlike hierarchical approaches, which tend to assign sub-dimensions to overarching FFM traits, circumplex conceptualize traits as a blend of two FFM traits, potentially garnering greater clarity surrounding organisationally-relevant personality traits (Shoss & Witt, 2013; Woods & Anderson, 2016).

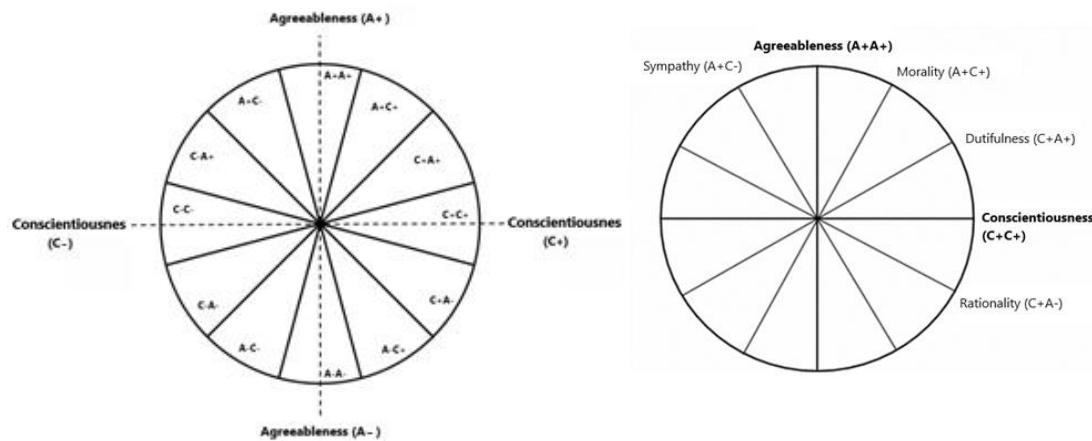
Organising the Personality Factor Space

It has been argued that personality models which emphasize interactions between two traits will be more informative than hierarchical models. This has been proposed as even after well-conducted rotations of factors, most traits have considerable secondary loadings on other traits (Goldberg, 1993). Therefore, a more informative paradigm may be to conceptualise current traits as blends of two or more factors, rather than exclusively representative of one single latent factor (Soto & John, 2009).

Using the FFM as a foundation, the Abridged Five Dimension Circumplex Model (AB5C; Hofstee, de Raad, & Goldberg, 1992) uses the factorial blending of personality traits to define and organise the space captured by the FFM. The AB5C model comprises ten circumplexes built from pairs of FFM traits, for example Conscientiousness x Agreeableness, Conscientiousness x Extraversion, and so on. Each circumplex is divided into twelve 30-degree sections, as shown by Figure 3 (left), with traits located within the circumplex space according to their primary and secondary factor loadings.

Figure 3

AB5C Circumplex of Agreeableness and Conscientiousness factor space and corresponding traits



Traits with no secondary loadings are placed on the axes and are same across different circumplexes. For example: The Conscientiousness axis trait (C+C+) in the Figure 3 example (showing no secondary loading upon Agreeableness, positive or negative), is the same trait on this Agreeableness x Conscientiousness circumplex as it is on other circumplexes which include Conscientiousness. Therefore, within the AB5C model 10 sections are used across all 10 circumplex surfaces (E+E+, E-E- etc), with 8 sections unique to each of the 10 circumplex pairings (E+A+, E+C+ etc), give rise to 90 total circumplex sections.

A circumplex trait is said to represent a corresponding circumplex section space. Directly opposing sections, for example A+C+ and A-C-, are considered two poles of the same section. Therefore, within the AB5C model, the 90 sections are paired to give 45 unique traits (Goldberg, 1999). Table 3 describes all 45 circumplex traits.

Table 3*Primary and Secondary Loadings on the FFM of the AB5C Traits*

| Secondary Loading | Primary Loading | | | | |
|-------------------|-----------------|----------------|--------------------|------------------|---------------|
| | E+ | A+ | C+ | N+ | O+ |
| E+ | Gregariousness* | Warmth | Efficiency | Happiness | Ingenuity |
| A+ | Friendliness | Understanding* | Dutifulness | Calmness | Reflection |
| C+ | Assertiveness | Morality | Conscientiousness* | Moderation | Competence |
| N+ | Poise | Pleasantness | Purposefulness | Stability* | Quickness |
| O+ | Leadership | Empathy | Organisation | Toughness | Intellect* |
| E- | - | Cooperation | Cautiousness | Impulse Control | Introspection |
| A- | Provocativeness | - | Rationality | Imperturbability | Creativity |
| C- | Self-disclosure | Sympathy | - | Cool-Headedness | Imagination |
| N- | Talkativeness | Tenderness | Perfectionism | - | Depth |
| O- | Sociability | Nurturance | Orderliness | Tranquillity | - |

Note. E = Extraversion; A = Agreeableness; C = Conscientiousness; N = Neuroticism; O = Openness.

* = pure factor marker of the original FFM factors.

Although the AB5C traits are given fixed angular rotations representing their respective circumplex sector, it is important to note these positions and boundaries are arbitrarily derived. In reality, the circumplex structure lack categorical boundaries sharply demarcating a given trait from others proximal to it (Hofstee, de Raad, & Goldberg, 1992). Behaviours may correspond to any specific angular rotation and magnitude (distance from the centre-point) within the two-dimensional space in the 360-degree circumplex (Ansell & Pincus, 2004). However, defining fixed circumplex traits corresponding to high vs. low and positive vs. negative locations on each circumplex surface allows for a level of nuance and discriminant validity that trait x trait statistical interactions do not allow (Judge & Erez, 2007).

Circumplex Traits and Work Behaviours

There are a few reasons to suspect why circumplex traits may be useful in the organisational context. As outlined in Chapter 2, trait x trait interactions have proven incrementally predictive for a range of workplace behaviours. While both trait x trait interactions and circumplex traits posit that a combination of traits provides additional predictive validity, there are important differences between the two models. Where a statistical interaction represents a mathematical combination of two FFM traits, the circumplex model provides combinations of high and low levels of the two FFM traits. Here

lies a distinctive feature of the circumplex model: the isolation of a defined predictor space in the interactions between two traits (Acton & Revelle, 2002; Carson, 1996).

To the extent that a predictor space is relevant to an organisationally relevant behaviour, significant associations should emerge. Furthermore, through the exclusion of criterion-unrelated traits, significant associations will avoid attenuation and therefore increase reliability (Roberts, Chernyshenko, Stark, & Goldberg, 2005; Rothstein & Goffin, 2006). Circumplex traits fit this idea by representing a narrower portion of a personality than the FFM traits they are related to. For example, the circumplex trait of Dutifulness (C+A+) more specifically relates to conforming to rules and proper etiquette than either Conscientiousness or Agreeableness. As Dutifulness appears to be relevant to the avoidance of breaking rules, it is incrementally predictive for CWBs than Conscientiousness, Agreeableness, and the statistical interaction the two (Burns, Morris, & Wright, 2014).

Reflecting a protracted debate examining the use of narrow versus broad traits (Ones & Viswesvaran, 1996; Paunonen, Rothstein, & Jackson, 1999; Tett, Steele, & Beauregard, 2003), a question arises: are circumplex traits incrementally predictive because they represent blends of traits, or narrower criterion-relevant traits? Research has shed some light here, such that circumplex traits explain unique variance above narrower sub-dimensions when predicting CWBs (Morris, Burns, & Periard, 2015). While appearing to provide a useful level of analysis above other FFM conceptualisations, several circumplex spaces remain under-investigated with respect to CWBs, and none have investigated their relationships to OCBs to the author's knowledge.

The Interpersonal Circumplex (IPC).

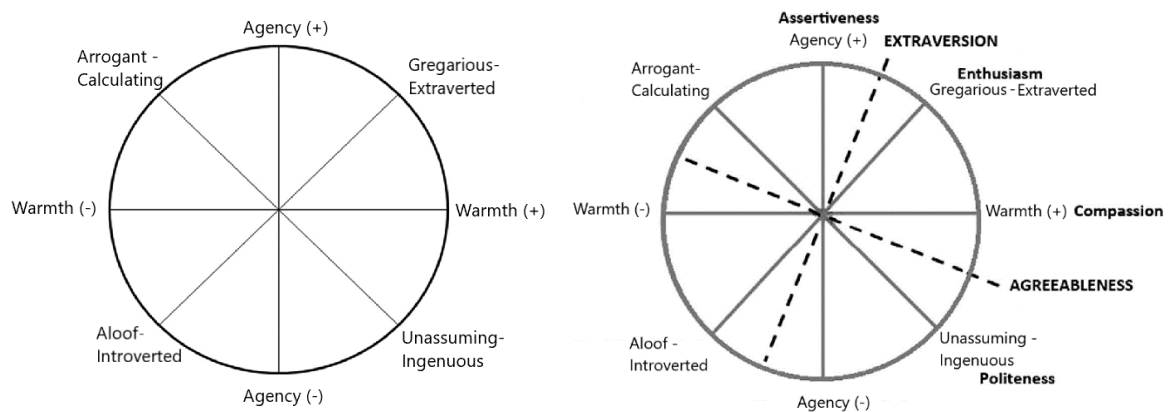
Early within FFM history, researchers noted that two of the five dimensions were strongly related to social behaviour. Many of the traits represented by Extraversion (e.g. sociable, talkative) and Agreeableness (e.g. empathetic, warm, cooperative) visibly echo interpersonal tendencies. In line with this thought, research has shown that Extraversion and Agreeableness correspond to the Interpersonal Circumplex (IPC; McCrae & Costa, 1989; Pincus, 2002; Wiggins & Pincus, 1994).

The Interpersonal Circumplex (IPC) is a structural model used for describing interpersonal behaviours, traits, and motives, organizing social interactions according to two orthogonal dimensions, often labelled status, agency, or dominance and love, communion, or nurturance (Gurtman, 2009; Wiggins, 1996). Much like the AB5C Circumplex model, the IPC moves beyond a simple two-dimensional model by adding traits at 45-degree diagonals representing blends of positive or negative variations of each axis.

Shown in Figure 4, Extraversion and Agreeableness have systematic, rotational correspondence to these axes in the FFM (McCrae & Costa, 1989; Pincus, 2002; Wiggins & Pincus, 1994), illuminating the expressions of personality traits within the social world. Furthermore, the sub-dimensions of Extraversion and Agreeableness also have systemic, rotational correspondence to these axes in the NEO-PI-R (McCrae & Costa, 1989; Pincus, 2002) and BFAS models (Barford, Zhao, & Smillie, 2015; DeYoung, Weisberg, Quilty, & Peterson, 2013).

Figure 4

The Interpersonal Circumplex, Extraversion and Agreeableness and its Component Subdimensions



Note. Left = Interpersonal Circumplex. Right = Circumplex Organisation of Extraversion, Agreeableness and subdimensions.

The locations of traits in the IPC indicate not only how they relate to each axis, but also how they relate to one another. Traits closer to one another around the circumference are more positively correlated with each other, traits at 90-degree angles are not associated, and traits at opposite sides are inversely associated. For example, Gregarious-Extraverted traits would be considered equal parts agentic and warm, strongly negatively associated with aloof-introverted traits, and unrelated to arrogant-calculating behaviours (see Figure 4). The circumplex orientation also depicts why sub-dimensions of Extraversion and Agreeableness are positively correlated (Enthusiasm and Compassion), but the other two are negatively correlated (Assertiveness and Politeness; DeYoung, Quilty, & Peterson, 2007; Weisberg, DeYoung, & Hirsh, 2011).

Not all circumplex surfaces show subdimensions at various angles between the trait axes. Many have simpler structures, showing sub-dimensions clustering near the axes (Gurtman, 2009; Hofstee, de Raad, & Goldberg, 1992; Saucier, 1992). One of the appealing features of integrating the Extraversion-Agreeableness circumplex with the IPC is that it facilitates the integration of trait and

interpersonal theories, providing an opportunity to consider which psychological processes contribute to many of the interpersonal thoughts, feelings, and behaviours which arise within organisations (Acton & Revelle, 2002; Carson, 1996).

For example, detailed mapping of the FFM traits and subdimensions onto the IPC implies that, like compassion, warm tendencies reflect empathic processes (Allen, Rueter, Abram, Brown, & DeYoung, 2017; Zhao, Ferguson, & Smillie, 2016), unassuming tendencies like Politeness reflect social-inhibitory processes (Smillie, Lawn, Zhao, Perry, & Laham, 2019), agentic tendencies like assertiveness reflect incentive reward processes, and gregarious tendencies like enthusiasm reflect hedonic reward processes (Quilty, DeYoung, Oakman, & Bagby, 2014). Thus, personality psychology has begun moving beyond mere descriptive models to the development of explanatory models.

The IPC model may also be utilised to describe interactions on two timescales. Over shorter timescales, the IPC may describe a single interaction between two individuals (placing individuals' behaviour in the two-dimensional space of the IPC). Over longer timescales, the IPC may describe behaviours an individual may tend to bring to all social encounters (identifying the circumplex space in which the individual most often resides; Pincus & Ansell, 2003). Perhaps paradoxically, over shorter periods behaviours change dynamically from moment to moment (Fleeson, 2001; Fleeson & Jayawickreme, 2015). While over longer periods traits show stable patterns of thoughts, feelings, and behaviour (Fleeson & Gallagher, 2009; Roberts, Wood, & Caspi, 2008). Showing a probabilistic rather than deterministic expression, we may infer for example, that individuals high in Agreeableness will tend to have more warm than antagonistic orientations towards others, but we cannot know exactly when or which behaviours the agreeable person will express in any given moment.

To the author's knowledge, Extraversion has not been included in circumplex research looking at CWBs and OCBs, and as such we sought to explore this gap. The FFM's interpersonal traits (Extraversion and Agreeableness) have been thought to encompass all overt interpersonal behaviours (DeYoung & Weisberg, 2019). This becomes important in the organisational context as the establishment and maintenance of interpersonal working relationships are among the most important work activities individuals can engage in (Powers, 2014). As enthusiastic engagement and pro-social orientation towards others are the behavioural manifestations of Extraversion and Agreeableness, they are likely to be important for jobs requiring interpersonal interactions. In increasingly competitive environments, the benefit of increases in prosocial employees can become a competitive and financial advantage to the organisation (Morgeson, Campion, Dipboye, Hollenbeck, & Schmitt, 2007).

Where goal-directed and social models of behaviour appear to collide is in interpersonal environments. One of the most important features of interpersonal environments is the interactions

between individuals. Separable from personality traits, are predictable patterns of moment-to-moment behaviour arising from the interactions between partners. Status-related behaviours tend to trigger dissimilar responses in partners, such that assertive behaviours tend to trigger avoidance behaviours in the other partner. Conversely, affiliative-related behaviours tend to trigger similar responses in partners, such that warm or cold behaviours are reciprocated in the other partner (Fournier, Moskowitz, & Zuroff, 2008; Pincus & Ansell, 2003). From this view, not only are social traits important for understanding how an individual may behave in a prospective organisation, but also how an individual may influence or be influenced by others within an existing organisation.

The notion that the Agreeableness-Extraversion circumplex incorporates all explicit interpersonal behaviours still allows the other FFM traits to influence interpersonal behaviour. Many of the negative thoughts and feelings attributed to Neuroticism, such as anxiety and anger, have social implications. Likewise, the rule-following and goal-directiveness associated with Conscientiousness, and the enlightened self-interest associated with Openness, have social implications (McCrae & Sutin, 2009; Smillie, Lawn, Zhao, Perry, & Laham, 2019). However, from the view of interpersonal theory, these influences should be visible in behaviours expressed as blends of Extraversion and Agreeableness (DeYoung & Weisberg, 2019). For example, an individual high in Neuroticism's Withdrawal aspect is likely to act submissively and exhibit low levels of Assertiveness, while individuals high in Neuroticism's Volatility aspect are likely to act explosively and in a disagreeable manner, and thus be represented socially as low Politeness.

Here, factors influencing one trait can influence other traits, and thus influence social behaviours. While the research will focus on the E-A circumplex, it should be noted it is possible that some social behaviours are not captured by to the dimensions of the E-A circumplex.

Agreeableness and Social Behaviours.

Agreeableness reflects a tendency to weigh an individual's interests against the interests of others (DeYoung & Weisberg, 2019; Graziano & Tobin, 2009; Van Egeren, 2009). Individuals high in Agreeableness tend to be kind, warm, polite, and accommodating. Individuals low in Agreeableness tend to be selfish, ruthless, and vengeful (Crowe, Lynam, & Miller, 2018). Thought to stem from affective systems of care (Davis & Panksepp, 2011), Agreeableness facilitates cooperative, fair, and benevolent behaviours and promotes interpersonal harmony (Zhao & Smillie, 2015).

Cooperation and prosocial behaviours require an understanding of others' emotions, intentions, and mental processes, alongside the suppression of aggressive impulses and socially disruptive emotions (Haas, Omura, Constable, & Canli, 2007; Meier, Robinson, & Wilkowski, 2006).

Agreeableness appears to be the most representative trait of these capacities (Graziano, Habashi, Sheese, & Tobin, 2007; Mayer, Roberts, & Barsade, 2008; Wilkowski, Robinson, & Meier, 2006),

Given how social human beings tend to be, cooperation with others is an integral part of life. The optimal degree of cooperation however is ambiguous, with benefits and trade-offs conferred to individuals at all levels of Agreeableness (DeYoung & Weisberg, 2019). Individuals high in Agreeableness tend to work well with others, but often struggle to assert themselves (Gadke, Tobin, & Schneider, 2016; Jensen-Campbell & Graziano, 2001). Individuals low on Agreeableness tend to assert themselves more effectively (Braakmann, 2009; Nyhus & Pons, 2012) and are less likely in general to be taken advantage of (Matz & Gladstone, 2018), but are more likely to be aggressive (Jones, Miller, & Lynam, 2011).

Factor analysis has revealed Agreeableness to be composed of two dimensions: Compassion (vs. Callousness) and Civility/Politeness (vs. Incivility/Aggression; Crowe, Lynam, & Miller, 2018; DeYoung, Quilty, & Peterson, 2007). Individuals high in Compassion tend to be interested in the needs, problems, and pains of other people. They tend to be empathic, liberal in spending time with others, and to take the interests of others into account. It is of no surprise then that compassion has been associated with empathy (Hou, et al., 2017), the capacity to reason about another's mental state (Allen, Rueter, Abram, Brown, & DeYoung, 2017), and social attachment and bonding (Allen & DeYoung, 2017; Perry, Mankuta, & Shamay-Tsoory, 2015).

Politeness on the other hand reflects a tendency to respect authority and conform to social norms. Individuals high on Politeness tend not to be pushy, insulting, and not to break rules. The suppression of aggressive impulses appears to be a defining mechanism of politeness (DeYoung, Weisberg, Quilty, & Peterson, 2013), leading to higher rates of moralistic and socially normative behaviours (Smillie, Lawn, Zhao, Perry, & Laham, 2019). In line with a suppressive conceptualisation, Politeness has been moderately negatively associated with Volatility (DeYoung, Quilty, & Peterson, 2007; Weisberg, DeYoung, & Hirsh, 2011), a trait marker for defensive aggression and externalising behaviour (Corr, DeYoung, & McNaughton, 2013).

Investigations into the influences of Compassion and Politeness upon organisational behaviours have not been done as of present. However, some indications suggest these subdimensions will each contribute uniquely to helping and hurting behaviours in organisations (Zhao & Smillie, 2015). Politeness, but not compassion, has been associated with the fair treatment of others (Zhao, Ferguson, & Smillie, 2017a). In contrast, compassion has been associated with helping others who have been treated unfairly (Zhao, Ferguson, & Smillie, 2017b). Compassion has been uniquely associated with warmth towards individuals from social out-groups, and Politeness negatively with

support for out-group immigration policies (Smillie, Lawn, Zhao, Perry, & Laham, 2019). Further research is required to understand Compassion and Politeness's unique contributions to organisational behaviours.

Extraversion and Social Behaviours.

People with high levels of Extraversion are typically outgoing, spontaneous, laugh often, and tend to be talkative. Conversely, people who are low in Extraversion tend to be reserved, withdrawn, quiet and aloof. Extraversion represents a tendency to experience positive emotions, particularly in response to rewards (Smillie, DeYoung, & Hall, 2015). As outlined in Chapter One, Extraversion is primarily driven by a sensitivity to rewards (Allen & DeYoung, 2017; Depue & Collins, 1999; Mueller, 2014). As such, Extraversion converges strongly with the BAS (Quilty, DeYoung, Oakman, & Bagby, 2014; Wacker & Smillie, 2015), with both Extraversion and BAS serving as markers of the same latent factor (Gable, Reis, & Elliot, 2003; Heubeck, Wilkinson, & Cologon, 1998). Extraversion therefore represents individual differences in the propensity to be energized by incentives and to show approach behaviour (Depue & Collins, 1999; Smillie, 2013). With such wide implications for organisational settings, a more in-depth discussion is required to understand Extraversion's impacts upon social-organisational behaviours.

Assertiveness and Enthusiasm as Social Traits.

Although Extraversion is often viewed as a social trait, it incorporates more than just social behaviour, such as physical activity and positive emotionality even in non-social environments. The social component can be viewed as a function of the reward value of social engagement (Costa & McCrae, 1992). As the subdimensions of Extraversion have differential relationships to reward, they have divergent impacts on social behaviours.

A range of authors have discussed the role of two qualitatively different social dimensions within Extraversion, each associated with distinct emotional and behavioural characteristics (Depue & Collins, 1999; Morrone, Depue, Scherer, & White, 2000; Morrone-Strupinsky & Depue, 2004). For instance, two subdimensions of BAS have been thought to give rise to a Dominance/Sensation-Seeking and a Nurturance/Love dimensions (MacDonald, 1995; MacDonald, 2012). The first represents social dominance, surgency, and aggression, and the latter represents building supportive social networks. More recently under the umbrellas of 'agency' and 'affiliation' respectively, psychometric research has confirmed the existence of these two constructs as subdimensions of Extraversion (Depue, 2006).

An equivalent distinction in the FFM has been extracted to produce two subdimensions: Assertiveness encompassing traits relating to agency, leadership, and dominance, and Enthusiasm encompassing outgoing friendliness, sociability, and positive emotionality (DeYoung, Quilty, &

Peterson, 2007). In line with this distinction, Enthusiasm has been shown to predict warmth, affection, and positive activation in response to an affiliative stimulus (Inglis, Obonsawin, & Hunter, 2018). Assertiveness has been shown to predict positive activation (feelings of arousal, energy, and vigour) in response to an appetitive stimulus (Smillie, Cooper, Wilt, & Revelle, 2012).

Assertiveness, Enthusiasm, and the AB5C.

One inference of the correspondence between the IPC and the E-A circumplex is that all social behaviours should emerge within the circumplex regardless of loadings upon other FFM traits (DeYoung & Weisberg, 2019). The agentic and affiliative subdimensions of Extraversion are an example. Upon examination of the two factors corresponding to the E-A circumplex traits, the agentic subdimension has been found to align with the agentic axis, and the affiliative subdimension aligned with the Gregarious-Extraverted trait (see Figure 4). However, when the subdimensions of ten personality inventories widely used for personnel assessment were correlated to the AB5C structure, Extraversion's subdimensions diverged in their associations with specific circumplexes (Woods & Anderson, 2016). Where the affiliative markers had a secondary loading on Agreeableness ('Warmth', E+A+), the agentic markers of Extraversion loaded secondarily on Conscientiousness ('Work Pace', E+C+), and Openness ('Bold Leadership', E+O+).

Despite having secondary loadings upon Conscientiousness and Openness, the Agentic subdimension nonetheless showed a distinctive expression in the social traits. This could be theorized in a few ways. The agentic subdimension (Assertiveness) could be strongly aligned with the agency axis simply through a strong agentic underpinning (BAS Drive and Industriousness) and strong negative association with the Withdrawal sub-dimension (a marker for the BIS; Corr, DeYoung, & McNaughton, 2013). Its disagreeable expression on the E-A circumplex (E+A-) could be surmised to be a product of agentic behaviour prioritized above social harmony, as represented by a moderately negative association with Politeness but weakly positive association with Compassion (Quilty, DeYoung, Oakman, & Bagby, 2014).

Predicting Workplace Behaviours from the E-A Circumplex

To the author's knowledge, the associations between E-A Circumplex traits and organisational behaviours have not been explicitly explored. However, axis traits (E+E+, A+A+, etc.) are the same as they are on other circumplexes which include their trait. Where OCBs and Extraversion have not been explored in past circumplex research, the Agreeableness axis trait has shown a strong negative association with CWBs (Burns, Morris, & Wright, 2014; Gonzalez-Mule, DeGeest, & Mount, 2013).

In a novel attempt to create a 'periodic table' of personality, the subdimensions of ten personality inventories widely used for personnel assessment have been integrated with the AB5C

framework (Woods & Anderson, 2016). Here, subdimensions were factor analysed and placed within the AB5C according to their empirical association with an AB5C trait. Three subdimensions were found to sit most appropriately within the Extraversion-Agreeableness circumplex. Gregariousness and Positive Emotions were shown to be associated most closely with AB5C Friendliness (E+A+; Woods & Anderson, 2016), which have each shown a positive relationship with OCBs and non-significant relationship with CWBs (Helle, et al., 2018). The third, Warmth, was shown to be most closely associated with AB5C Warmth (A+E+; Woods & Anderson, 2016), showing a weak negative association with CWBs in one sample and a non-significant association in a second sample (Helle, et al., 2018).

Outside of AB5C research, the subdimensions of Extraversion and Agreeableness have been placed within the IPC. Agreeableness's subdimensions of Straightforwardness, Compliance, and Modesty have been found to be most closely associated with the Unassuming-Ingenuous region of the IPC (A+E-; Pincus, 2002), be negatively related to CWBs, and non-significantly related to OCBs (Helle, et al., 2018). Extraversion's Assertiveness and Activity have been found to be most closely associated with the Assured-Dominant region of the IPC (E+A-; McCrae & Costa, 1989), be associated positively with OCBs and non-significantly related to CWBs (Helle, et al., 2018). Significant findings are summarised in Table 4.

Table 4

Suggested Correlations between E-A Circumplex Traits and Organisational Behaviours

| Circumplex traits | OCBs | CWBs |
|--------------------------|-------------|-------------|
| Provocativeness (E+A-) | ++ | NS |
| Friendliness (E+A+) | ++ | NS |
| Warmth (A+E+) | +++ | NS |
| Cooperation (A+E-) | NS | - - - |

Note. ++ denotes positive correlation between .2 and .3, +++ denotes positive correlation over .3, - -

- denotes negative correlation over .3, NS = Non-Significant.

While there is a correspondence between a hierarchical FFM structure, interpersonal trait theory, and E-A circumplex traits, their relationships are not causal and should not be treated as such. It is unclear whether circumplex traits themselves will express the suggested organisational behaviours in Table 4, given the paucity of research in the area. However, there is evidence to suspect the suggestions in Table 4 could be replicated in the E-A circumplex traits.

Suggested Agreeableness Traits.

Well established within the literature is Agreeableness's role in organisational behaviour. Agreeable people tend to engage in helping behaviours towards other workers, tend to be warm, helpful, considerate, tolerant, trusting, and are more likely to facilitate prosocial behaviours towards other group members (Suresh & Venkatammal, 2010). It is of no surprise, then, that Agreeableness has been consistently positively associated with OCBs (Chiaburu, Oh, Berry, Li, & Gardner, 2011), and negatively with CWBs (Berry, Ones, & Sackett, 2007; Bolton, Becker, & Barber, 2010).

The suggested divergent relationship between the two traits primarily loading upon Agreeableness (A+E+, A+E-) may represent the divergent means for which the subdimensions of Agreeableness regulate cooperative and altruistic behaviour. Where Compassion reflects a tendency towards prosocial behaviour through empathy (Allen, Rueter, Abram, Brown, & DeYoung, 2017; Zhao, Ferguson, & Smillie, 2016), Politeness reflects prosociality through the suppression of socially-aversive behaviour and drive towards conforming to social norms. (DeYoung, Weisberg, Quilty, & Peterson, 2013; Zhao, Ferguson, & Smillie, 2016). Given the equivalence between Compassion and Warmth (A+E+), and Politeness with Cooperation (A+E-), these two subdimensions of Agreeableness may suggest two systems of approach and avoidance behaviour in organisations.

In Reinforcement Theory nomenclature – Warmth (A+E+) would indicate a tendency for approach towards (positive association with Extraversion,) prosocial behaviours (positive association with Agreeableness), while Cooperation (A+E-) would indicate a prosocial tendency (positive association with Agreeableness) to avoid (negative association with Extraversion) antisocial behaviours. From this view, the suggestions in Table 4 may be reflected in the E-A circumplex traits.

There is support for the notion that low levels of Extraversion may reflect not only lowered levels of approach behaviour and reward sensitivity, but also heightened top-down inhibitory processing. From a task-based view, low levels of Extraversion has been associated with stronger performance on cognitive measures of top-down inhibitory processing (Bargary, et al., 2017; Nguyen, Mattingley, & Abel, 2008). There is also evidence to suggest these processes occur within the E-A circumplex and may influence organisational behaviours.

Where Extraversion represents the trait expression of the BAS, motivating individuals to approach potentially rewarding situations, Neuroticism represents the trait expression of the BIS, a defensive regulatory system for the BAS (DeYoung & Gray, 2009). The BAS and BIS together regulate the approach and avoidance behaviours of individuals. Some interesting divergences occur at the subdimensions of Agreeableness with the BIS and BAS. Where Compassion is positively correlated with the two subdimensions of Extraversion, Politeness is negatively associated with the agentic

subdimension of Extraversion and negatively associated with the Volatility subdimension of Neuroticism (DeYoung, Quilty, & Peterson, 2007; Weisberg, DeYoung, & Hirsh, 2011).

This sits in line with the Politeness subdimension of Agreeableness conceptualised as a socially inhibitive process (Allen & DeYoung, 2017). As a construct, Politeness tends to align with other constructs such as civility, amiability, and compliance in factor analyses (Crowe, Lynam, & Miller, 2018). Agreeableness has also been associated with the suppression of aggressive impulses and other socially disruptive emotions (Meier, Robinson, & Wilkowski, 2006), with subsequent research pointing to the Politeness subdimension as its primary driver (DeYoung, Weisberg, Quilty, & Peterson, 2013). Individuals higher in Politeness have also shown to exhibit behaviours compliant with social norms concerning fair behaviour, independent from those driven by empathy and concern for others well-being (Smillie, Lawn, Zhao, Perry, & Laham, 2019).

Within Extraversion-related research, individuals lower on Extraversion tend to perform better than those high in Extraversion in cooperative group settings (Bentea & Anghelache, 2012). Those high in Extraversion tend to adopt more competitive styles of interpersonal interaction, whereas those low in Extraversion tend to adopt more collaborative approaches (Nussbaum, 2002). Lower levels of Extraversion and higher levels of Honesty-Humility (an Agreeableness-related trait also aligning with AB5C Cooperation in the E-A circumplex; Barford, Zhao, & Smillie, 2015) also predict lower levels of workplace anti-social behaviour (Lee, Ashton, & Shin, 2005). Together, this evidence would suggest that individuals high in trait AB5C Cooperation would tend toward top-down inhibition of socially disruptive actions.

Suggested Extraversion Traits.

Well established within the OCB literature is a link between positive moods and helping behaviours (Dalal, Lam, Weiss, Welch, & Hulin, 2009; Spector & Fox, 2002; Venkataramani & Dalal, 2007). It seems when individuals feel good, they tend to help others. As Extraversion has been tied intimately with positive affect, incentive reward sensitivity and approach behaviour (Smillie, 2013; Quilty, DeYoung, Oakman, & Bagby, 2014), it would seem the suggestions in Table 4 have some basis. Organisations provide a wealth of incentive opportunities, including engagement in fulfilling tasks, building relationships with others, and meeting career goals. As individuals higher in Extraversion tend to experience increased activated positive affect (happiness, pleasure, excitement, and energy) following incentive stimuli (Smillie, DeYoung, & Hall, 2015), it is reasonable to predict increased participation in OCBs will be present in organisational settings among those higher in Extraversion.

It has also been theorized that Extraversion would be associated to helping behaviours through having larger social circles and therefore increased opportunities to help others (Organ,

Podsakoff, & MacKenzie, 2006). However recent meta-analyses reveal only weak associations ($r = .10$) between Extraversion and OCBs (Chiaburu, Oh, Berry, Li, & Gardner, 2011). Despite larger social networks, Extraverts tend not to have closer relationships with those individuals in their networks (Pollet, Roberts, & Dunbar, 2011). As such Extravert's increased social presence does not appear to be derived from a drive to help others, instead reflecting the reward value of social interactions (Smillie, 2013).

A convergence of evidence would seem to support this assertion. When isolated from other traits, Extraversion exhibits very weak associations with helping (Chiaburu, Oh, Berry, Li, & Gardner, 2011) or deviance behaviours (Ashton & Lee, 2001). However, in conjunction with other traits Extraversion has been seen to confer incremental utility. For example: Increases in Extraversion have been shown to strengthen the relationship between low Honesty-Humility and CWBs (Oh, Lee, Ashton, & de Vries, 2010), and strengthen the relationship between Conscientiousness and helping behaviours (King, George, & Hebl, 2005). From this view, Extraversion may serve as an amplification tool to other traits, increasing participation through an increased reward sensitivity (Smillie, 2013).

Where Extraverts are motivated to seek out social interaction, the interpersonal valence of these interactions may be determined by levels of Agreeableness (Ashton, Lee, & Paunonen, 2002). Overt prosocial behaviours would tend to be displayed by individuals high in Extraversion and Agreeableness, and overt deviant behaviours tend to be displayed by individuals high in Extraversion and low Agreeableness (Ashton & Lee, 2001; DeYoung, Weisberg, Quilty, & Peterson, 2013).

Reinforcement Theory would also suggest some support. Trait Friendliness's position in the E-A circumplex suggests movement towards (positive association with Extraversion) prosocial behaviours (positive association with Agreeableness). Supporting this idea, Friendliness has been shown to converge with Enthusiasm and represent the affiliative side of Extraversion (DeYoung & Weisberg, 2019). In organisational environments, affiliative Extraversion and heightened reward sensitivity would be expected to encourage prosocial behaviours such as helping others out, operating as a diligent team member, and working cooperatively with others. Although an area not well explored, markers of affiliative Extraversion have been associated with cooperating with others (Ben-Ner & Halldorsson, 2010; Hirsh & Peterson, 2009).

Of all circumplex surfaces, markers of affiliative Extraversion correspond most closely to the E-A Circumplex, which lends support for their suggested expression in organisational behaviours. When forced to correspond to a trait in the E-A Circumplex, markers of agentic Extraversion tend to fall in line with the Provocativeness (E+A-) trait (Barford, Zhao, & Smillie, 2015; DeYoung, Weisberg, Quilty, & Peterson, 2013). However, when allowed free association with any circumplex, surface markers of

agentic Extraversion instead tend to fall in the Extraversion-Conscientiousness circumplex (Woods & Anderson, 2016). Markers corresponding most closely with Provocativeness (E+A-) instead tend to represent domineering and status-driven forms of interpersonal interactions.

Provocativeness, aligning with the Agency axis in the IPC, may therefore best be conceptualised to capture the reward value of agentic and status-driven behaviour (Barford, Zhao, & Smillie, 2015; DeYoung, Weisberg, Quilty, & Peterson, 2013). Participation in OCBs and CWBs could therefore be conceptualised as utilitarian rather than altruistic or deviant. Non-altruistic motivations have been seen to underpin some OCBs (Bergeron, Shipp, Rosen, & Furst, 2013; Hui, Lam, & Law, 2000; Yun, Takeuchi, & Liu, 2007), and the participation in OCBs by Extraverts has been shown to be engaged in to achieve ancillary outcomes, such as for positive emotions, rewards from social interaction, and impression management (Chiaburu, Stoverink, Li, & Zhang, 2013; Okun, Pugliese, & Rook, 2007; Oh, Charlier, Mount, & Berry, 2014).

Reinforcement Sensitivity Theory may also suggest a divergence from Table 4's suggestion for trait Provocativeness (E+A-). Trait Provocativeness's position in the E-A circumplex suggests a movement towards (positive association with Extraversion) anti-social behaviours (negative association with Agreeableness). Where Extraverts are motivated to seek out social interaction, the interpersonal valence of these interactions would tend to be determined by an individual's Agreeableness level (Ashton, Lee, & Paunonen, 2002). Overt prosocial behaviours would then tend to be displayed by individuals high in Extraversion and Agreeableness, and overt deviant behaviours tend to be displayed by individuals high in Extraversion and low Agreeableness (Ashton & Lee, 2001; DeYoung, Weisberg, Quilty, & Peterson, 2013).

Within organisational contexts reward and punishment processes are inherent to many helping and hurting behaviours where occasions for personal gain and losses motivate action. Provocativeness may suggest individual differences in a sensitivity to status to a degree that they undermine cooperative behaviour by motivating behaviours toward strategies maximizing personal gain (Zhao & Smillie, 2015). In support, markers for agentic Extraversion have been negatively correlated with a range of cooperative behaviours (Koole, Jager, van den Berg, Vlek, & Hofstee, 2001; Scheres & Sanfey, 2006; Skatova & Ferguson, 2011), but found unrelated to Aggression or Quarrelsomeness (DeYoung, Weisberg, Quilty, & Peterson, 2013). Therefore, while in isolation agentic markers of Extraversion may indicate a positive association with OCBs, Provocativeness may also suggest a level of antisocial agenticism corresponding to CWBs.

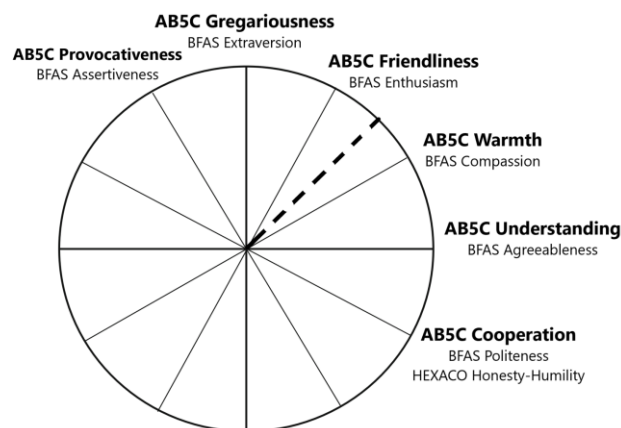
The Intersection of Agreeableness and Extraversion.

The intersection of Agreeableness and Extraversion represents a conceptually and statistically fuzzy inter-trait area. Past research has shown subdimensions of Agreeableness and Extraversion sometimes group together in factor analyses (Church, 1994; Church & Burke, 1994). Furthermore the Compassion and Enthusiasm subdimensions show stronger correlations between one another than their intra-trait pairs (DeYoung, Quilty, & Peterson, 2007; Weisberg, DeYoung, & Hirsh, 2011). The proximity of Compassion and Enthusiasm in the E-A circumplex may help to explain why.

In a psychobiological model of trait affiliation, prosocial behaviours are thought to extend from both Extraversion's sensitivity to social reward, and Agreeableness's empathic processes (Morrone-Strupinsky & Depue, 2005). Reflective of this, trait affiliation has been shown to sit between Enthusiasm and Compassion in the E-A Circumplex (refer to dotted line in Figure 5 - DeYoung, Weisberg, Quilty, & Peterson, 2013).

Figure 5

Integrated FFM – Interpersonal Circumplex. Note – adapted from (DeYoung, Weisberg, Quilty, & Peterson, 2013)



Note. Dotted line indicates trait affiliation.

There would seem to be some supporting evidence to suggest the affiliation-related intersection between Extraversion and Agreeableness could be related to OCBs. Indicators of affiliative Extraversion have been associated with cooperating with others (versus competing with others; Ben-Ner & Halldorsson, 2010; Hirsh & Peterson, 2009; Wilmot, Wanberg, Kammeyer-Mueller, & Ones, 2019). Compassion also uniquely predicts prosocial behaviours through empathy (Hou, et al., 2017;

Zhao, Ferguson, & Smillie, 2016). From this view, AB5C Warmth and Friendliness may capture affiliative-related helping behaviours supportive of OCBs.

Limitations on Interpretations from Circumplex Models

While it may seem that the convergence of traits upon the IPC would lend itself to the building of better explanatory models for interpersonal behaviours, caution is advised. The circumplex models do not have the exactness of geometry. People express a range of behaviours for a range of reasons. For example, although conceptualised to align with the Agency axis of the IPC (E+A-), results across a range of samples indicate Assertiveness floats between the low pole of Cooperation (A-E+) and Gregariousness (E+E+) trait sections (Barford, Zhao, & Smillie, 2015; DeYoung, Weisberg, Quilty, & Peterson, 2013). While precision appears to be unobtainable in relation to most psychology-related constructs, we may get hints as to how individuals high or low in each trait tend to act in a range of circumstances.

It is also not clear whether AB5C traits represent the sub-dimensions of Extraversion and Agreeableness alone, degrees of interactions between traits, or a combination of both. Is an individual Assertive by virtue of high Extraversion and low Agreeableness? Or do agentic forms of Extraversion lead to behaviours which would be classified as antagonistic? Despite causal claims (DeYoung & Weisberg, 2019), research integrating Extraversion, Agreeableness, and their subdimensions with the IPC have been correlative and cross-sectional (Barford, Zhao, & Smillie, 2015; DeYoung, Weisberg, Quilty, & Peterson, 2013). The general reliance on cross-sectional data in this body of research can only lead to correlational rather than causal interpretations at present. As an example, individuals high in Compassion would tend to be associated with increased participation in behaviours associated with circumplex trait Warmth, but one could not say the empathetic processes associated with Compassion (Allen, Rueter, Abram, Brown, & DeYoung, 2017; Hou, et al., 2017; Zhao, Ferguson, & Smillie, 2016), cause warm interpersonal behaviours.

What remains, however, are questions regarding how the E-A circumplex traits are related to organisational behaviours. The present research seeks to uncover the relationships E-A circumplex traits have with OCBs and CWBs.

The Present Study

So, who engages in helping and hurting behaviours within organisations? One consequence of the equivalence between the IPC, Extraversion and Agreeableness subdimensions, and the Extraversion-Agreeableness Circumplex, is that all traits describing overt social behaviour should fit within this circumplex (DeYoung & Weisberg, 2019). Given the interpersonal nature of many

workplaces, it makes sense that many of the interpersonal traits arising in the E-A circumplex would predict helping and hurting behaviours within an organisation.

In line with the suggestions in Table 4, we hypothesize the following:

- Hypothesis 1a: Friendliness and Warmth will be positively associated with OCBs.
- Hypothesis 1b: Cooperation will be negatively associated with CWBs.
- Hypothesis 1c: Provocativeness will be positively associated with CWBs.

To the degree that a personality trait aligns with relevant criteria, the stronger predictive relationships should become (Judge & Erez, 2007). While uniquely aligning and predictive traits would be discovered by looking at the strength of correlations between circumplex traits and criterion, the present research also sought to test the role of circumplex traits specifically. AB5C traits have been thought to show incremental predictive validity above their FFM traits as they concurrently represent: a) interactions between traits (Burns, Morris, & Wright, 2014; Judge & Erez, 2007), and b) narrower ranges of personality than their respective trait (Morris, Burns, & Periard, 2015). Thus, we hypothesized the relevant circumplex traits would be incrementally predictive of criteria above their respective axis traits.

- Hypothesis 2a: Warmth (A+E+) and Friendliness (E+A+) will remain significantly associated with OCBs after controlling for the axis traits (Gregariousness, E+E+, and Understanding A+A+).
- Hypothesis 2b: Provocativeness (E+A-) and Cooperation (A+E-) will remain significantly associated with CWBs after controlling for the axis traits (Gregarious, E+E+, and Understanding A+A+).

Such hypothesis testing assesses the incremental predictive capacity of circumplex traits above traits alone. However, we also sought to test whether circumplex traits were the primary driver of criteria within the axis trait. To clarify this point, we provide an example: Agreeableness has been shown to have a negative relationship with CWBs (Berry, Ones, & Sackett, 2007; Bolton, Becker, & Barber, 2010), and positive relationship with OCBs (Chiaburu, Oh, Berry, Li, & Gardner, 2011). We hypothesize this was due to Agreeableness's subdimensions, Compassion and Politeness, each having a unique and exclusive relationship with OCBs and CWBs respectively. As such, we hypothesized the relevant circumplex traits would mediate the relationship axis traits had with criteria, such that:

- Hypothesis 3a: Friendliness (E+A+) would mediate the relationship of Gregariousness (E+E+) with OCBs.

- Hypothesis 3b: Warmth (A+E+) would mediate the relationship of Understanding (A+A+) with OCBs.
- Hypothesis 3c: Provocativeness (E+A-) would mediate the relationship of Gregariousness (E+E+) with CWBs.
- Hypothesis 3d: Cooperation (A+E-) would mediate the relationship of Understanding with CWBs.

The nature of a circumplex structure indicates that traits at opposite sides of the circumplex would be negatively related to one another. As outlined above, Provocativeness was hypothesized to have a positive relationship with CWBs stemming from an increased agentic drive. In other words, the marked increases in self-serving motivations and behaviours would increase the appeal of engaging in CWBs. However, amongst individuals high in Cooperation, a trait associated with the suppression of impulses at odds with social demands, these urges may be suppressed or their appeal may be reduced (Colbert, Mount, Harter, Witt, & Barrick, 2004; Fishbein & Ajzen, 1975). Therefore, we hypothesize the Provocativeness-CWB relationship will be stronger for workers who are low in cooperation than for workers who are high in cooperation

- Hypothesis 4: Cooperation would moderate the relationship between Provocativeness and CWBs.

Chapter Four: Method

Participants

Participants (N = 233) were recruited via posters on a Palmerston North, New Zealand University Campus and shared messages on social media (Facebook). Participation was voluntary and anonymous. Adults individuals (18+ years) who reported working 30+ hours per week for longer than 3 months were invited to participate in the study. All participants conducted the survey via a link to the online survey platform Qualtrics. Appendix A and B outline the confirmation of Ethical engagement, participant information sheet, and Survey. All surveys were completed in full, with no missing data present.

Measures

Circumplex personality measures.

The circumplex traits of Gregariousness (E+/E+), Friendliness (E+/A+), Warmth (A+/E+), and Understanding (A+/A+) were assessed using an abridged form of the AB5C-IPIP (Bucher & Samuel, 2018). The 12 item self-report measure assessed the four circumplex traits (3 items for each trait) by identifying how a statement best represented their own temperament in accordance with the following response options: (1) Very inaccurate, (2) Moderately inaccurate, (3) Neither inaccurate nor accurate, (4) Moderately accurate, and (5) Very accurate. A sample item was “am life of the party.”

An exploratory factor analysis with a principal axis extraction was conducted on the 12 items with orthogonal rotation (Varimax), as each circumplex trait was expected to operate independently from each other. The Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis, KMO = 0.83 (‘meritorious’ according to Kaiser & Rice, 1974), and the Bartlett’s test reached significance ($p < .001$). An initial analysis was run to obtain eigenvalues for each factor in the data. Three factors had eigenvalues over Kaiser’s criterion of 1 and in combination explained 53% of the variance. The scree plot showed inflection points justifying a 4-factor solution.

Items which cross-loaded more than 0.3 on more than one factor were removed, leaving 10 items which each loaded on a single factor. The first factor comprised 4 items (example item: “Talk to a lot of different people at parties”) accounting for 35% variance. Factor 1 was labelled Gregariousness and had a Cronbach’s alpha of 0.75. Factor 2 comprised four items (example item: “Make people feel welcome”) accounting for 11% variance. Labelled Warmth, factor 2 had a Cronbach’s alpha of 0.83. Factor 3 comprised 2 items (example item: “Can’t be bothered with other’s needs”) accounting for 7% variance. Labelled Understanding, factor 3 had a Cronbach’s alpha of 0.68. No single factor comprising

the Friendliness items was identified, items instead loaded on both the Gregariousness and Warmth factors.

Within the abridged AB5C scale, the circumplex traits Provocativeness (E+A-) and Cooperation (A+E-) have not shown sufficient loadings upon their secondary trait domain to be considered a reliable measure within the present research (Bucher & Samuel, 2018). Therefore, the Provocativeness and Cooperation traits were measured using the original, non-abbreviated AB5C-IPIP measure (Hofstee, de Raad, & Goldberg, 1992). The longer form AB5C contains 11 items measuring Provocativeness, and 12 items measuring Cooperation.

An exploratory factor analysis with a principal axis extraction was conducted on the 23 items with orthogonal rotation (Varimax), as each circumplex trait was expected to operate independently from each other. The Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis, $KMO = 0.87$ ('meritorious' according to Kaiser & Rice, 1974), and the Bartlett's test reached significance ($p < .001$). An initial analysis was run to obtain eigenvalues for each factor in the data. Five factors had eigenvalues over Kaiser's criterion of 1, however the screen plot indicated a 2-factor solution, describing 37% of the variance.

Items which cross-loaded above 0.3 on more than one factor were removed, leading to the deletion of 12 items. The first factor was comprised of seven items (example item: "Dare to say anything") accounting for 30% variance. Factor 1 and was labelled Provocativeness and had a Cronbach's alpha of 0.78. Factor 2 was comprised of four items (example item: "Value Cooperation over competition") accounting for 7% of the variance. Factor 2 was labelled Cooperation and had a Cronbach's alpha of 0.50.

Counter-productive workplace behaviour measure.

CWBs were measured with a 19 item self-report measure assessing how often an individual has engaged in several undermining behaviours within a work context over the past year (example item: "Taken property from work without permission"; Bennett & Robinson, 2000). Items were rated on a Likert scale from 1 (never engaging in behaviour) to 7 (engaging in the behaviour daily), resulting in an overall deviance scale and two subscales: organisational and interpersonal CWBs. Our guiding theory suggested the organisational and interpersonally focused subdimensions were two correlated forms of workplace deviance, hence a principal component analysis with oblique rotation was used to explore factor solutions (Ford et al., 1986; Kim & Mueller, 1978).

The Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis, $KMO = 0.93$ ('marvellous' according to Kaiser & Rice, 1974), and all KMO values for individual items were above

0.87, which is well above the acceptable limit of 0.5 (Kaiser & Rice, 1974). An initial analysis was run to obtain eigenvalues for each factor in the data. Three factors had eigenvalues over Kaiser's criterion of 1 and in combination explained 64.8% of the variance. The scree plot had a clear inflection point justifying a 2-factor solution.

Reflecting the original measurement (Bennett & Robinson, 2000), items showed substantial cross-factor loadings, and the interpersonal-organisational distinctions within the design was not reflected in the factor structure. In this light, it was decided criterion-CWB relationship investigations in the present research would be conducted with a single factor measuring overall CWB, comprised of the mean of all items. Cronbach's alpha was .94.

Organisational citizenship behaviour measure.

The Organisational Citizenship Behaviour Checklist (Fox, Spector, Goh, Bruursema, & Kessler, 2012), is a 20- item self-report measure used to measure the frequency of organisationally and interpersonally-focused citizenship behaviours in the workplace, for example: "Lent a compassionate ear when someone had a work problem". Participants rated each item on a 5-point Likert scale, ranging from 1 (never) to 5 (every day). To be consistent with the guiding theory, we investigated whether the OCB measure would fit a two-factor structure, with one factor targeting interpersonally focused behaviours and the other targeting organisationally focused behaviours. As both factors were expected to be correlated, we explored the data with a principal component analysis and oblique rotation (Field, 2018, Ford, MacCallum, & Tait, 1986).

The Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis, KMO = 0.94 ('marvellous' according to Kaiser & Rice, 1974), and all KMO values for individual items were above 0.91, which is well above the acceptable limit of 0.5 (Kaiser & Rice, 1974). An initial analysis was run to obtain eigenvalues. Two factors had eigenvalues over Kaiser's criterion of 1 and in combination explained 57% of the variance. The scree plot has a clear inflection justifying a 2-factor solution. Table 4 shows the factor loadings after rotation.

Reflecting the original measurement (Fox, Spector, Goh, Bruursema, & Kessler, 2012), items showed substantial cross-factor loadings and the interpersonal-organisational distinctions within the design were not reflected in the factor structure. In this light, it was decided that OCBs would be investigated as a single factor computed as the mean of all items. Cronbach's alpha of 0.95.

Data Analysis

Pearson's r correlations (two-tailed) between the circumplex personality traits and organisational behaviours (OCBs and CWBs) were carried out. All statistical analyses were conducted with SPSS Version 25 (IBM Corporation, 2017).

To investigate whether circumplex traits loading upon two traits (Provocativeness E+A-, Warmth A+E+, and Cooperation (A+E-) had incremental predictive validity above the traits loading on only one trait (Gregariousness E+E+ and Understanding A+A+) we utilised a series of regressions. For both types of organisational behaviours (OCBs and CWBs), all axis traits were entered at the first step, and all circumplex traits were added into the second step.

A bootstrapped mediation analysis was engaged in to ascertain whether circumplex traits mediate the relationships between axis traits and organisational behaviours. This process of analysis will be carried out on each of the following traits, against both types of organisational behaviours (OCBs, and CWBs).

- Predictor = Understanding (A+A+), Mediator = Cooperation (A+E-)
- Predictor = Understanding (A+A+), Mediator = Warmth (A+E+)
- Predictor = Gregariousness (E+E+), Mediator = Provocativeness (E+A-)

To test mediation, the PROCESS macro (Hayes, 2017) in SPSS Version 25 (IBM Corporation, 2017) was used. In this macro a series of regression analyses is carried out to separate the direct effect of the predictor variable on the criterion variables from the indirect effect via the mediator. Here, the indirect effect is bootstrapped, allowing estimates of the properties of the sampling distribution to be generated from the sample data. Effect sizes, confidence intervals, and hypothesis tests can be estimated through re-sampling (5,000 iterations in the present research). Where 95% of the bootstrap sample estimates fall outside of zero, we may infer whether the indirect effect is significant at the .05 level (Wright, London, & Field, 2011).

It was hypothesized that Cooperation would moderate the effect of Provocativeness on CWBs. Therefore, moderation was tested using the PROCESS macro for SPSS (Hayes, 2017), which included the main effects and the interaction term.

Chapter Five: Results

Participants

The age groups and education data of the participants in the final sample (N = 233) are described in Table 5 below.

Table 5

Participant Age and Education

| Age | % | Frequency | Education | % | Frequency |
|-------------|----|-----------|---------------------------------|----|-----------|
| 18-24 years | 6 | 14 | Not completed high school | 3 | 6 |
| 25-34 years | 29 | 67 | Completed high school | 17 | 40 |
| 35-44 years | 28 | 65 | Polytechnic or trade cert | 25 | 58 |
| 45-54 years | 17 | 40 | Bachelor's degree | 37 | 86 |
| 55-64 years | 13 | 30 | Honours degree | 7 | 16 |
| 65-74 years | 7 | 16 | Master's degree | 6 | 15 |
| 75 years + | <1 | 1 | Professional or Doctoral Degree | 6 | 12 |

Note. N= 233, Males = 105 (45%), Females = 128 (55%)

As expected from a working population, most participants were between 25 and 64 years old and were educated above the high school level. Spearman's nonparametric correlation analyses revealed older participants were higher in understanding ($p = .256$, 95%CI [.134,.374]) and Cooperation ($p = .170$, 95%CI [.041,.304]), and participants who had completed higher levels of schooling were higher in Provocativeness ($p = .145$, 95%CI [.017,.270]).

Review of histogram and box plot graphs of frequency data, z scores, and P-P plots revealed normally distributed data in the circumplex and OCB scales. However, a non-normal distribution arose in the CWB data. An S shape in the CWB P-P plot indicated a problem with skewness, and a positive skewness score ($p = <.05$) indicated a pile-up of scores on the left of the distribution. A histogram review confirmed a pile-up of scores near the lower CWB values. Log10, square root, and reciprocal transformations reduced skew of CWB data. Analyses were run with transformed and non-transformed data, with no significant difference in the overall results. As such, non-transformed data was used for subsequent analyses. Table 6 describes the non-transformed descriptive statistics of the scale measures.

Table 6

Descriptive Statistics Organisational Behaviours, Deviance Behaviours, and Circumplex Traits

| | Mean | Std. Deviation |
|-----------------|------|----------------|
| Gregariousness | 2.74 | 0.87 |
| Warmth | 3.86 | 0.68 |
| Understanding | 3.62 | 1.00 |
| Cooperation | 3.48 | 0.53 |
| Provocativeness | 2.75 | 0.72 |
| CWBs | 1.74 | 0.91 |
| OCBs | 2.67 | 0.80 |

Note. CWB = Counter-productive Work Behaviours, OCB = Organisational Citizenship behaviours. N = 233.

Analysis

Table 7 includes the Pearson's correlations between all traits and organisational behaviour types.

Table 7

Correlations: Organisational Citizenship Behaviours, Counterproductive Work Behaviours, and Personality Traits

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|-----------------|-------|------|-------|-------|--------|--------|-------|-------|---|
| Age | 1 | | | | | | | | |
| Education | -.14* | 1 | | | | | | | |
| Gregariousness | .02 | -.03 | 1 | | | | | | |
| Warmth | .09 | -.01 | .42** | 1 | | | | | |
| Understanding | .26** | -.09 | .13 | .30** | 1 | | | | |
| Cooperation | .17** | .01 | .10 | .36** | .29** | 1 | | | |
| Provocativeness | -.07 | .15* | .25** | .07 | -.31** | -.16* | 1 | | |
| CWBs | -.10 | .06 | .12 | -.10 | -.23** | -.30** | .38** | 1 | |
| OCBs | -.10 | .07 | .26** | .32** | .04 | .14 | .15* | .23** | 1 |

Note. All Bivariate correlations: Spearman's for Education data, and Pearson's for all other correlations. ** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

The circumplex traits (Warmth, Cooperation, and Provocativeness) added a significant amount of variance above the axis traits (Understanding and Gregariousness) in the prediction of OCBs ($\Delta R^2 = .07, p = .001$) as outlined in Table 8. However, in a reverse-order regression the axis traits did not add significant variance above the circumplex traits (not depicted; $\Delta R^2 = .02, p = .149$). Of the two axis traits, only Gregariousness was significantly related to OCBs. When the axis traits were added to step 2, only Warmth explained significant unique variance, and Gregariousness only approached significance.

Table 8

Linear model of predictors of OCBs

| | <i>b(SE)</i> | <i>95%CI</i> | <i>B</i> | <i>p</i> |
|-----------------|--------------|--------------|----------|----------|
| Step 1 | | | | |
| (Constant) | 1.99(.24) | [1.53, 2.46] | | <.001 |
| Gregariousness | .24(.06) | [.13, .36] | .26 | <.001 |
| Understanding | .01(.05) | [-.10, .10] | .01 | .948 |
| Step 2 | | | | |
| (Constant) | .70(.45) | [-.18, 1.59] | | .119 |
| Gregariousness | .13(.07) | [-.01, .25] | .14 | .056 |
| Understanding | -.03(.06) | [-.14, .08] | -.04 | .561 |
| Warmth | .29(.09) | [.12, .47] | .25 | .001 |
| Cooperation | .10(.10) | [-.11, .30] | .06 | .352 |
| Provocativeness | .11(.08) | [-.04, .26] | .10 | .158 |

Note. $R^2 = .07$ for Step 1; $\Delta R^2 = .07$ for Step 2 ($p = .149$).

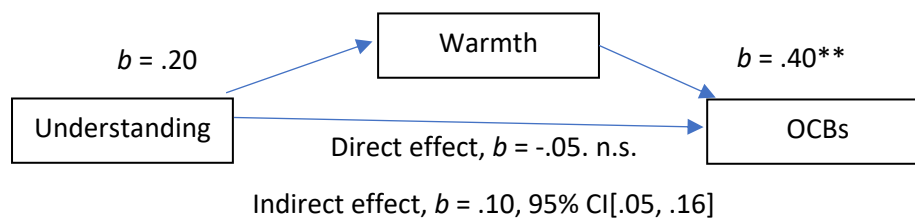
At step 1, both Gregariousness and Understanding explained significant variance in CWBs. When circumplex traits (Warmth, Cooperation, and Provocativeness) were added, neither axis trait explained significant variance, and only Cooperation and Provocativeness remained as significant predictors. The circumplex traits also added a significant amount of variance above the axis traits (Understanding and Gregariousness) in the prediction of CWBs ($\Delta R^2 = .14, p = <.001$) as outlined in Table 9. However, in a reverse-order regression the axis traits did not add significant variance above the circumplex traits (not depicted; $\Delta R^2 = .01, p = .215$).

Table 9*Linear model of predictors of CWBs*

| | <i>b</i> (<i>SE</i>) | <i>95%CI</i> | <i>B</i> | <i>p</i> |
|-----------------|------------------------|--------------|----------|----------|
| Step 1 | | | | |
| (Constant) | 2.12(.27) | [1.60, 2.65] | | <.001 |
| Gregariousness | .16(.07) | [.03, .29] | .153 | .018 |
| Understanding | -.23(.06) | [-.34, -.11] | -.248 | <.001 |
| Step 2 | | | | |
| (Constant) | 2.25(.49) | [1.29, 3.22] | .106 | <.001 |
| Gregariousness | .11(.71) | [-.03, .25] | -.062 | .116 |
| Understanding | -.06(.06) | [-.18, .06] | -.072 | .351 |
| Warmth | -.10(.10) | [-.28, .09] | -.219 | .311 |
| Cooperation | -.38(.11) | [-.59, -.16] | .304 | .001 |
| Provocativeness | .39(.08) | [.22, .55] | .153 | <.001 |

Note. $R^2 = .075$ for Step 1; $\Delta R^2 = .141$ for Step 2 ($p = <.001$).

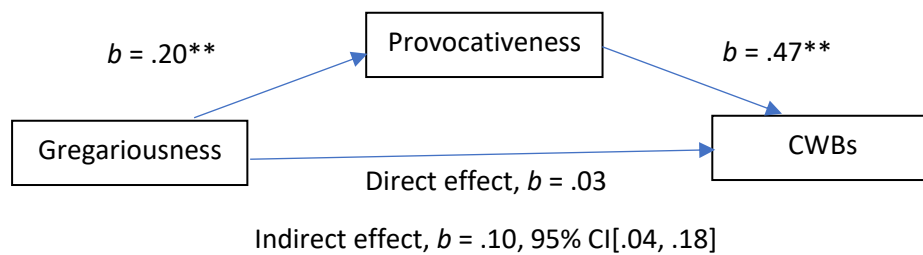
Although Understanding was not correlated with OCBs at the bivariate level (see Table 6), this is not a prerequisite for mediation (Hayes, 2009; Zhao, Lynch, & Chen, 2010). Depicted in Figure 5 and in Table 10, Understanding's relationship with OCBs was mediated by Warmth.

Figure 6*Model of Understanding as a predictor of OCBs, mediated by Warmth*

Provocativeness mediated Gregariousness's relationship with CWBs (see Figure 6).

Figure 7

Model of Gregariousness as a predictor of CWBs, mediated by Provocativeness



Finally, Cooperation mediated understanding's relationship with CWBs (see Figure 7 and Table 9).

Figure 8

Model of Understanding as a predictor of OCBs, mediated by Warmth

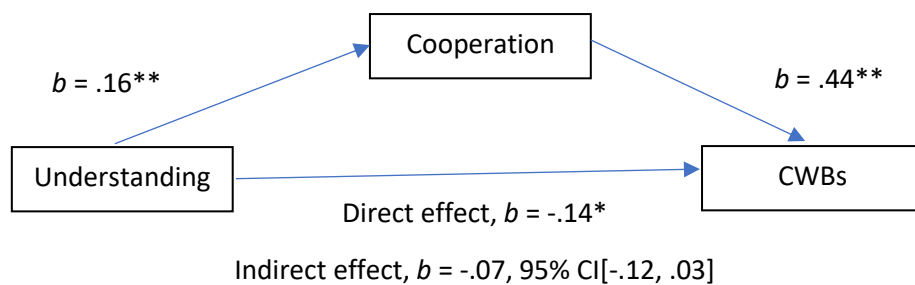


Table 10

Linear regression models examining the direct effect of axis traits, and mediation (indirect effects) of circumplex traits on CWBs and OCBs

| Outcome | Predictor variable | B(SE) | 95% CI | P value | Outcome | Predictor variable | B(SE) | 95% CI | P value |
|---------|-----------------------------------|-----------|--------------|---------|---------|-----------------------------------|-----------|--------------|---------|
| OCBs | | | | | CWBs | | | | |
| | Direct effect - Understanding | <.00(.06) | [-.11, .11] | .97 | | Direct effect - Understanding | -.14(.06) | [-.26, -.02] | .02 |
| | Indirect effect – Cooperation | .03(.02) | [<-.00, .07] | | | Indirect effect – Cooperation | -.07(.02) | [-.12, -.03] | |
| | Total effect | .03(.05) | [-.07, .13] | .56 | | Total effect | -.21(.06) | [-.32, -.09] | <.001 |
| | R | .14 | | | | R | .23 | | |
| | R ² | .02 | | | | R ² | .05 | | |
| OCBs | | | | | CWBs | | | | |
| | Direct effect - Understanding | -.05(.05) | [-.15, .05] | .34 | | Direct effect - Understanding | -.20(.06) | [-.32, -.08] | <.001 |
| | Indirect effect - Warmth | .10(.03) | [.05, .16] | | | Indirect effect - Warmth | -.01(.02) | [-.06, .03] | |
| | Total effect | .38(.08) | [.22, .52] | <.001 | | Total effect | -.21(.06) | [-.32, -.09] | <.001 |
| | R | .04 | | | | R | .23 | | |
| | R ² | <.01 | | | | R ² | .05 | | |
| OCBs | | | | | CWBs | | | | |
| | Direct effect - Gregariousness | .22(.06) | [.10, .34] | <.001 | | Direct effect - Gregariousness | .03(.07) | [-.10, .16] | .64 |
| | Indirect effect - Provocativeness | .02(.02) | [-.01, .06] | | | Indirect effect - Provocativeness | .10(.04) | [.04, .18] | |
| | Total effect | .24(.06) | [.13, .36] | <.001 | | Total effect | .12(.07) | [-.01, .26] | .06 |
| | R | .26 | | | | R | .12 | | |
| | R ² | .07 | | | | R ² | .02 | | |

Note: Indirect effects and 95%CI measured through 5000 iterations of Bootstrapping.

The moderation analysis revealed significant moderating effects of Cooperation upon Provocativeness's relationship with CWBs, such that:

- When Cooperation was low (-1SD), there is a significant positive relationship between Provocativeness and CWBs, $b = 0.430$, 95% CI [0.260, 0.600], $t = 4.97$, $p = <.001$.
- When Cooperation was average, there is a significant positive relationship between Provocativeness and CWBs, $b = 0.295$, 95% CI [0.156, 0.434], $t = 4.17$, $p = <0.001$.
- When Cooperation was high, there is a non-significant positive relationship between Provocativeness and CWBs, $b = 0.160$, 90% CI [-0.032, 0.352], $t = 1.64$, $p = 0.101$.

Table 11 describes the three regression steps.

Table 11

Linear Model of Predictors of CWBs

| | <i>b</i> | <i>SE B</i> | <i>t</i> | <i>p</i> |
|-------------------------------|--------------------------|-------------|----------|----------|
| Constant | 1.738 [1.63,1.85] | 0.0542 | 32.07 | <.001 |
| Provocativeness (centred) | 0.297 [0.16, 0.43] | 0.0702 | 4.23 | < .001 |
| Cooperation (centred) | -0.469 [-0.61, -0.33] | 0.0715 | -6.55 | < .001 |
| Provocativeness * Cooperation | -0.194 [-0.36,0.028] | 0.0846 | -2.29 | 0.022 |

Note. $R^2 = 0.26$

Effects remained significant after entering demographics into first step of the moderation analysis.

Chapter Six: Discussion

Advances in personality theory have revealed a wealth of meaningful relationships between several different traits and a wide range of variables, from job attitudes (Judge, Heller, & Mount, 2002) to performance (Barrick, Mount, & Judge, 2001). Such advances have acted as a catalytic agent for an explosion in personality research in the last two decades, expanding research into the measurement of personality and its relationship with organisational variables (Hough & Oswald, 2005). The purpose of this study was to examine the relationship between social AB5C traits and organisational behaviours. The current results indicate that several of the AB5C circumplex traits are uniquely relevant to helping and hurting behaviours within organisations.

Personality Trait Interactions and Organisational Behaviours

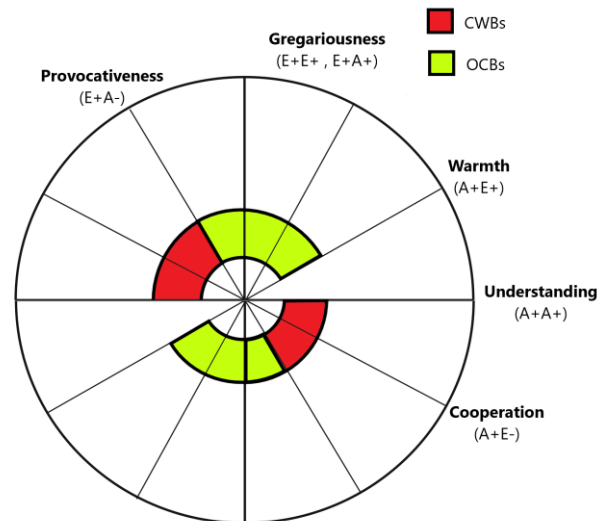
The FFM has provided a useful framework for examining personality and has become a dominant driving factor in the continuation of personality research within organisations. Notwithstanding, criticisms have remained that the FFM does not offer the intricacy required for accurately understanding the influence of personality within organisations (Block, 1995; John, Hampson, & Goldberg, 1991).

One method of adding nuance is by investigating the interactions between traits. Within early attempts to uncover the structure of personality, it was found that most descriptive adjectives used to represent one trait in the FFM had substantial loadings on two factors (Hofstee, de Raad, & Goldberg, 1992). As such, despite many models describing personality as having a hierarchical organisation, most traits are better considered blends of two FFM factors than strictly falling under one factor.

The first purpose of the current research was to extend the usefulness of the FFM model by exploring the traits at the intersection between Extraversion and Agreeableness and their relationships with CWBs and OCBs. Supporting Hypothesis 1, bivariate analyses revealed CWBs were only significantly related to Provocativeness E+A- (positively) and Cooperation A+E- (negatively). OCBs in contrast were positively associated with Warmth (A+E+), Gregariousness (E+E+), and Provocativeness (E+A-). Figure 8 depicts these associations.

Figure 9

E-A Circumplex Traits and their Relationships with OCBs and CWBs



Interactions Between Traits

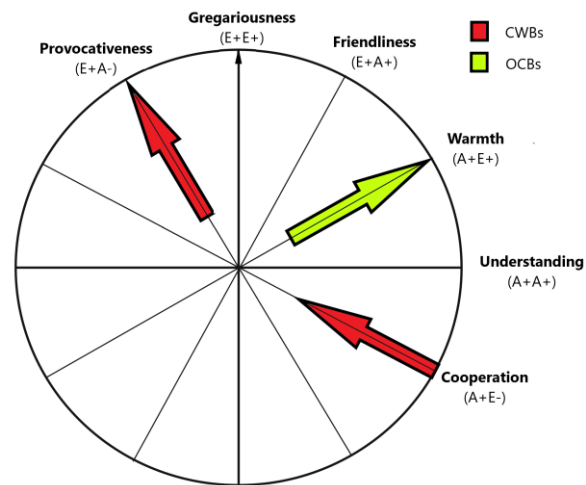
The second purpose of the current project was to investigate the relative importance of interactions between traits with traits in isolation. Specifically, we investigated whether the impact of traits loading upon two trait factors, represented within the AB5C model (Hofstee, de Raad, & Goldberg, 1992), predicted OCBs and CWBs beyond traits which did not have a secondary loading. As each circumplex trait (e.g. Warmth) loads primarily on one trait (e.g. Agreeableness) and secondarily on another (e.g. Extraversion), we were able to assess the interaction between two traits and its relative relevance to predictive capacity.

Supporting Hypothesis 2 (where possible as we did not produce a viable measure of Friendliness), the traits representing a blend of two factors contributed variance to the prediction of OCBs and CWBs above traits representing one factor alone, such that Warmth remained significantly associated with OCBs and Provocativeness and Cooperation remained significantly associated with CWBs after controlling for the axis traits (Understanding A+A+, Gregariousness E+E+). Furthermore, we found the relationships axis traits had with criteria were made non-significant when considering other traits concurrently.

Although displayed as discrete traits, the circumplex structure creates predictor variables which are highly correlated. Following the example laid by Johnson and LeBreton (2004), we examined the relative contribution each trait made to the prediction of organisational behaviours by itself and with other traits being considered. Through a series of regression and mediation analyses, first considering the axis traits, then considering other traits, many trait x criterion relationships were rendered non-significant, leaving unique relationships remaining, as depicted in Figure 9.

Figure 10

E-A Circumplex Traits and their Unique Relationships with CWBs



Where Understanding (A+A+) was significantly negatively associated with CWBs, regression analyses rendered this association insignificant in favour of Cooperation (A+E-). This would suggest the interaction between two traits was relatively more important in the prediction of CWBs than the trait isolation. Warmth (A+E+) was also significantly positively associated with OCBs but Understanding (A+A+) was not significantly associated. This would suggest not only was the interactions between traits was relatively more important than the factor in isolation, but also that Warmth's association with OCBs was the source of meaningful relationship with OCBs in Agreeableness.

In the regression and mediation analyses we treated Gregariousness as an axis trait. However, factor analyses of the circumplex measure collapsed the items corresponding to Friendliness into the Gregariousness and Warmth factors. This would suggest that as a measure of Extraversion in isolation, Gregariousness had elements of Agreeableness tainting the factor marker. Despite this, the Gregariousness factor's relationship with criteria was still rendered non-significant in the mediation and regression analyses, indicating other circumplex traits were the primary drivers of OCBs and CWBs, and not Gregariousness or Friendliness. Evaluations of results of the Extraversion related traits can therefore only be reduced to the relative importance of each trait, rather than an interactive vs. isolated trait comparison.

Expanding the Nomological Network

Circumplex traits were shown to mediate the relationship axis traits had with criteria, supporting Hypothesis 3. This finding indicates that not only are interactions between traits important, but that traits acting in concert drove the meaningful relationships in this study. These findings speak to two chief models of social aspects of personality. In one model, the interpersonal circumplex

(Gurtman, 2009; Wiggins & Pincus, 1994), traits are largely reducible to differences along two dimensions: Agency and Affiliation. In the second; the FFM, social behaviour is described by several subdimensions. One implication of the equivalence between the E-A circumplex traits, the subdimensions of Extraversion and Agreeableness, and the IPC (Barford, Zhao, & Smillie, 2015; DeYoung, Weisberg, Quilty, & Peterson, 2013), is that the findings within the present research may be described in a number of different lights.

Where Extraverts are motivated to seek out social interactions, the helping or hurting nature of these interactions in an organisational context was predicted to be determined by an individual's Agreeableness level (Ashton, Lee, & Paunonen, 2002). It was thought OCBs would be associated with individuals high in Extraversion and Agreeableness, and CWBs would be associated with individuals high in Extraversion and low Agreeableness (Ashton & Lee, 2001; DeYoung, Weisberg, Quilty, & Peterson, 2013). Following the correlation, regression, and mediation analyses, two unique relationships emerged to support this prediction. Where Warmth (A+E+) was positively associated with OCBs, Provocativeness (E+A-) was positively associated with CWBs.

Where individuals high in Agreeableness was expected to predict prosocial behaviours in the organisational setting, the level of Extraversion was expected to predict how this was expressed. High levels of Extraversion, representing increases in social reward sensitivity and approach behaviour (Quilty, DeYoung, Oakman, & Bagby, 2014), was expected to predict increases in prosocial behaviour. Low levels of Extraversion, representing antisocial-inhibiting processes (Smillie, Lawn, Zhao, Perry, & Laham, 2019), was expected to predict reductions in antisocial behaviour. Two unique relationships emerged to support this prediction. In individuals high in Agreeableness, OCBs were positively associated with individuals also high in Extraversion (Warmth A+E+), and CWBs were negatively associated with individuals low in Extraversion (Cooperation A+E-).

In order to be considered an interpersonal construct an organisational behaviour should not only show its highest correlation with one circumplex trait, but that its highest negative correlation should also be with traits at the opposite ends of the circumplex (Turan, Guo, Boggiano, & Bedgood, 2014). In our theoretical formulation we predicted Provocativeness would have a positive relationship with CWBs through an unrestrained agenticism, and Cooperation would have a negative relationship through a tendency to suppress antisocial behaviours. Our research reflected this finding, where Provocativeness (E+A-) had the strongest positive relationship with CWBs and Cooperation (A+E-) had the strongest negative relationship. Furthermore, it was hypothesized that individuals high in Cooperation would suppress the anti-social elements seen in Provocativeness. Our results supported

a moderation effect, such that in individuals high in Cooperation the relationship Provocativeness had with CWBs was rendered non-significant.

To the authors knowledge, circumplex research has been limited to task performance, CWBs and the Conscientiousness, Agreeableness, and Neuroticism traits. Thus, the present research extends insight into who is likely to engage in helping and hurting behaviours in organisations by exploring the E-A circumplex traits, OCBs and CWBs. We identified three unique traits relevant to organisational behaviours representing interactions between two FFM traits. Specifically, individuals who were provocative tended to engage in CWBs, individuals who were cooperative with others tended not to engage in CWBs, and interpersonally warm individuals tended to engage in OCBs.

Implications for Practice

The results from the present investigation leaves some questions for employers. In line with a wealth of meta-analytic evidence (Barrick, Mount, & Judge, 2001; Chiaburu, Oh, Berry, Li, & Gardner, 2011; Salgado, 2002), our research showed Agreeableness appears to be important for both helping and hurting behaviours within organisations, however for very different reasons. The combination of high levels of both Extraversion and Agreeableness was associated with increased levels of OCBs, CWBs were positively related to High levels of Extraversion and low Agreeableness, and CWBs were negatively related to low Extraversion and high Agreeableness. Does this mean an employer needs to select an employee who is both high and low in Extraversion? We explore this terrain below.

When comparing effect sizes with other circumplex trait-CWB research, the traits with the strongest relationships with CWBs lie amongst Conscientiousness and Agreeableness ($r = -.46$ to $-.55$; Burns, Morris, & Wright, 2014; Morris, Burns, & Periard, 2015), showing to be more predictive than the present research found ($r = .38$ with Provocativeness, and $r = -.30$ for Cooperation). As Conscientiousness, Agreeableness, and Neuroticism have been described to reflect a propensity for socially stable and responsible behaviour (Digman, 1997; Hogan & Holland, 2003; Mount, Barrick, & Ryan, 2003; Oh & Berry, 2009), it makes theoretical sense that interactions between these traits would yield stronger relationships with antisocial behaviours.

The role of circumplex traits have not, to the authors knowledge, been explored with respect to OCBs. Despite Extraversion having a weak to non-significant relationship with OCBs (Chiaburu, Oh, Berry, Li, & Gardner, 2011), the present research found the interaction between Agreeableness and Extraversion was incrementally predictive of OCBs above either trait alone. Furthermore, the present research found that the relationship Agreeableness (one of the strongest predictors of OCBs in the FFM; Ilies, Fulmer, Spitzmuller, & Johnson, 2009) had with OCBs was found to only be significant in high levels of Extraversion.

Limitations and Strengths

The present study has several limitations that are important to discuss. For one, we had an overwhelming proportion of educated participants. Most (80%) had completed at least a polytechnic or trade certification, which might limit our generalizability. All measures were also self-reported and were conducted during a single testing session. These points raise a few issues spanning from causality to common method variance and social desirability (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

First, as the data is cross-sectional in nature it raises challenges to the internal validity of the results and limits the cause-effect/personality-organisational behaviour inferences that can be made. In defence of this limitation, it could be argued that this is a relatively minor challenge as personality is a relatively stable construct in adults (Fleeson, 2001; Fleeson & Jayawickreme, 2015). In the pursuit of rigorous research however, the safest assumption is to remark upon personality and organisational behaviour's associations without commentary upon causality.

Secondly, despite being an online anonymous survey there is still concern that social desirability could have influenced responses to items, especially in response to socially undesirable items or CWB measures. Future research may seek to corroborate self-report findings with supervisor measures, however serious concerns arise surrounding the validity of the data. Specifically, CWBs are behaviours that most employees seek to keep covert, owing to legitimate reasons for recourse or termination from employers. As such issues of inaccurate reporting will inevitably lead to limited variability in responses and range restrictions (O'Brien & Allen, 2008). The present research found responses in the CWB measure suggestive of this, showing skew toward lowered CWBs. While transformed and non-transformed data yielded no significant differences in the subsequent results, future research is indicated to explore this area.

Thirdly, the cross-sectional, self-report, single testing session design opens the responses to two forms of potential biases: common method variance, and mono-method bias. Both our predictor (personality) and criterion (organisational behaviours) scores relied upon a single source of measurement, which may introduce a bias by ways of instrument. Using Harman's test of common method variance (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003), 21% of the variance was explained through forcing a 1 factor extraction. This sits well below the 50% marker of common method variance, suggesting that common method variance biases did not significantly impact the results.

As for the mono-method bias, the present research only used one measure for each of the circumplex and organisational behaviours. Many of our investigations and following lines of arguments were contingent upon a) the circumplex traits each representing a blend between traits, and b) also representing subdimensions of Extraversion and Agreeableness. Using only one measure

of the circumplex traits, despite showing good convergence with other circumplex measures (Ludeke, et al., 2019) and related constructs (Barford, Zhao, & Smillie, 2015; DeYoung, Weisberg, Quilty, & Peterson, 2013), opens the present research to mono method bias and challenges the structural validity of the study.

Future Research

The interactions between traits appears to be an important development for predictive capacities in the organisational sphere. However, it is reasonable to expect that the associations the E-A circumplex traits had with organisational behaviours may be attenuated in some situations or be more robust in others. For example, the interaction between Extraversion and Agreeableness may predict OCBs more often within in-person organisations than online organisations where workers do not meet face-to-face. Future research is encouraged to consider the role of personality in different interpersonal contexts

The present work presents a wide scope for future research. With respect to organisational behaviours and personality, future research should examine not just the degree of CWBs or OCBs which are engaged in, but also the types of CWBs or OCBs which different personality traits are related to. Despite issues of distinct factors not emerging within the CWB and OCB measures, past research has nonetheless shown personality traits have unique relationships with specific types of organisational behaviours (Berry, Ones, & Sackett, 2007; Ferreira & Nascimento, 2016). Just as different circumplex traits had unique associations to CWBs and OCBs, conceptually it makes sense that different traits would be sensitive to sub-types of behaviours. Future work could investigate the role of interactions between traits across sub-types of OCBs and CWBs.

One of the most robust discoveries of IPC research is consistent patterns of behavioural correspondence between interaction partners in some social behaviours. Specifically, behaviours along the affiliative axis of the IPC tend to evoke similar responses, such that warm or cold behaviours are returned in kind (Fournier, Moskowitz, & Zuroff, 2008; Pincus & Ansell, 2003). Conversely, behaviours along the agentic axis tend to evoke dissimilar responses, such that dominant/assured behaviours prompt submissive responses in return, and vice versa. As our research revealed unique relationships with helping and hurting behaviours in the workplace, future research could investigate how personality traits influence organisational behaviours in interaction partners.

Conclusion

Few studies have examined the use of circumplex traits upon organisational outcomes, and to the researcher's knowledge, none have examined the Extraversion-Agreeableness circumplex traits upon OCBs and CWBs. This study would suggest that circumplex traits play a powerful part in predicting organisational behaviours. A series of regression analyses supported our prediction that the circumplex traits would explain unique variance in predicting OCBs and CWBs above domain traits. Mediation analyses revealed unique personality-behaviour relationships, such that Warmth was positively associated with OCBs, Cooperation negatively with CWBs, and Provocativeness positively with CWBs. These findings would suggest circumplex trait's blend of two personality domains drive unique relationships within organisational behaviours above single traits alone.

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Appendix A: Ethics Confirmation



Date: 12 August 2019

Dear Daniel Allen

Re: Ethics Notification - 4000021546 - Circumplex traits and the prediction of counter-productive work behaviours and organisational citizenship behaviours: The intersection of Extraversion and Agreeableness

Thank you for your notification which you have assessed as Low Risk.

Your project has been recorded in our system which is reported in the Annual Report of the Massey University Human Ethics Committee.

The low risk notification for this project is valid for a maximum of three years.

If situations subsequently occur which cause you to reconsider your ethical analysis, please contact a Research Ethics Administrator.

Please note that travel undertaken by students must be approved by the supervisor and the relevant Pro Vice-Chancellor and be in accordance with the Policy and Procedures for Course-Related Student Travel Overseas. In addition, the supervisor must advise the University's Insurance Officer.

A reminder to include the following statement on all public documents:

"This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named in this document are responsible for the ethical conduct of this research."

If you have any concerns about the conduct of this research that you want to raise with someone other than the researcher(s), please contact Professor Craig Johnson, Director - Ethics, telephone 06 3569099 ext 85271, email humanethics@massey.ac.nz."

Please note, if a sponsoring organisation, funding authority or a journal in which you wish to publish requires evidence of committee approval (with an approval number), you will have to complete the application form again, answering "yes" to the publication question to provide more information for one of the University's Human Ethics Committees. You should also note that such an approval can only be provided prior to the commencement of the research.

Yours sincerely

Professor Craig Johnson
Chair, Human Ethics Chairs' Committee and Director (Research Ethics)

Research Ethics Office, Research and Enterprise
Massey University, Private Bag 11 222, Palmerston North, 4442, New Zealand T 06 350 5573; 06 350 5575 F 06 355 7973
E humanethics@massey.ac.nz W <http://humanethics.massey.ac.nz>

Appendix B: Information Sheet and Survey

Contained below is the information sheet and survey as presented online to survey participants.

Personality Traits and Organisational Behaviours

My name is Daniel Allen. I am a post-graduate student at Massey University, currently completing my Master's degree in Psychology. I am inviting you to participate in a research project I am leading investigating the effects of personality upon organisational behaviours Your agreement to take part in this study would be greatly appreciated.

What is the purpose of this research?

The purpose of the research is to learn from personality traits and their impacts upon many of the behaviours which occur within an organisational setting. The focus of this research has come about due to concerns about the validity (or lack thereof) of personality measures used by employers attempting to select the right person for the right roles. Our hope is to expand upon existing research in this area to aid future employers.

Why am I being contacted?

We are seeking 200 individuals to complete our survey. You are invited to participate if you have worked for more than three months at your current job (over 30+ hours/week).

If you participate, what will you need to do?

We would like you to participate in an online survey, taking approximately 15 minutes of your time. Questions will involve your personality and work behaviours. The survey continues on after this screen, should you elect to participate.

If you participate, what are the risks of being involved?

You may feel concerned about being identified, especially concerning aspects of your personality and different sides of your behaviours at work. For example, you might be concerned that participation will influence the way others may perceive you. To reassure you, information collected will be anonymous and shall remain confidential. Research findings will be shared, however only be at the group level - ensuring your anonymity.

If you participate, what are your rights?

You have the right to decline to answer any particular question. When the project is concluded, you also have the right to receive an Executive Summary of our final report and will be given access to the full report upon request. Completion and return of the questionnaire implies consent.

If you participate, how will your data be managed and stored?

Raw data will be stored securely in password protected electronic files for five years after completion of the project, when it will be destroyed.

Who else is involved in this research? From Massey University, my research team also includes my thesis supervisor Dianne Gardner, Senior Lecturer within the School of Psychology. +64 (06) 356 9099 ext. 85566 D.H.Gardner@massey.ac.nz

If you participate, what do you do if you have concerns about the research?

If you have any concerns please contact the project leader, Daniel Allen at [REDACTED] or [REDACTED].

This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named in this document are responsible for the ethical conduct of this research.

If you have any concerns about the conduct of this research that you want to raise with someone other than the researcher(s), please contact Professor Craig Johnson, Director - Ethics, telephone 06 3569099 ext 85271, email humanethics@massey.ac.nz.

Informed Consent Questions

I have read and understood the information sheet for this study and consent to collection of my responses.

- ☐ Yes
☐ No

I have worked at my current job for more than 3 months

- ☐ Yes
☐ No

Demographic Information

What is your age?

- ☐ Under 12 years old
☐ 12-17 years old
☐ 18-24 years old
☐ 25-34 years old
☐ 35-44 years old
☐ 45-54 years old
☐ 55-64 years old
☐ 65-74 years old
☐ 75 years or older

What is your sex?

- ☐ Male
☐ Female
☐ Intersex
☐ Prefer not to answer

What is the highest degree or level of school you have completed?

Social Circumplex Traits and Organisational Behaviour

- ☐ Did not complete High School
- ☐ High School
- ☐ Polytechnic or Trade Certificate
- ☐ Bachelors Degree
- ☐ Honours Degree
- ☐ Masters Degree
- ☐ Professional Degree (JD, MD, DClin etc)
- ☐ Doctoral Degree

Abbreviated AB5C

Rate how well the following statements describe your personality, from very inaccurate to very accurate.

| | Very inaccurate | Moderately inaccurate | Neither accurate nor inaccurate | Moderately accurate | Very accurate |
|---|-----------------------|--------------------------|---------------------------------------|------------------------|-----------------------|
| Am the life of the party | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Talk to a lot of different people at parties | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Keep in the background | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Make friends easily | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Warm up quickly to others | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Am hard to get to know | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Make people feel at ease | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Make people feel welcome | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Make others feel good | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Sympathize with others' feelings | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Feel little concern for others | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Can't be bothered with other's needs | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

AB5C Cooperation

Rate how well the following statements describe your personality, from very inaccurate to very accurate.

Social Circumplex Traits and Organisational Behaviour

| | Very inaccurate | Moderately inaccurate | Neither accurate nor inaccurate | Moderately accurate | Very accurate |
|------------------------------------|-----------------------|-----------------------|---------------------------------|-----------------------|-----------------------|
| Value cooperation over competition | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Listen to my conscience | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Impose my will on others | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Love a good fight | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Seek conflict | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Think too highly of myself | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Tell tall stories about myself | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Play tricks on others | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Enjoy crude jokes | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Comment loudly about others | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Enjoy being reckless | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do dangerous things | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

AB5C Provocativeness

Rate how well the following statements describe your personality, from very inaccurate to very accurate.

| | Very inaccurate | Moderately inaccurate | Neither accurate nor inaccurate | Moderately accurate | Very accurate |
|--|-----------------------|-----------------------|---------------------------------|-----------------------|-----------------------|
| Dare to say anything | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Am not afraid of providing criticism | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Boast about my virtues | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Know no limits | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Know how to get around the rules | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Can take strong measures | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Don't mind being the center of attention | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Make demands on others | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Can't stand confrontations | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Wait for my turn | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Hate to seem pushy | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Counter-productive Work Behaviours – Organisational

Indicate on the scales below, from never to daily, the extent to which you have engaged in each of the following behaviours in the last year

| | Never | Once a year | Twice a year | Several times a year | Monthly | Weekly | Daily |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Taken property from work without permission | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Spend too much time fantasizing or daydreaming instead of working | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Falsified a receipt to get reimbursed for more money than you spent on business expenses | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Taken an additional or longer break than is acceptable at your workplace | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Come in late to work without permission | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Littered your work environment | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Neglected to follow your boss's instructions | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Intentionally worked slower than you could have worked | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Discussed confidential company information with an unauthorized person | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Used an illegal drug or consumed alcohol on the job | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Put little effort into your work | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Dragged out work in order to get overtime | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Counter-productive Work Behaviours - Interpersonal

Indicate on the scales below, from never to daily, the extent to which you have engaged in each of the following behaviours in the last year

Social Circumplex Traits and Organisational Behaviour

| | Never | Once a year | Twice a year | Several times a year | Monthly | Weekly | Daily |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Made fun of someone at work | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Said something hurtful to someone at work | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Made an ethnic, religious, or racial remark at work | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Cursed at someone at work | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Played a mean prank at someone at work | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Acted rudely toward someone at work | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Publicly embarrassed someone at work | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Organisational Citizenship Behaviours - ½

Indicate how often, from never to every day, you have performed the following behaviours

Social Circumplex Traits and Organisational Behaviour

| | Never | Once or twice | Once or twice per month | Once or twice per week | Every day |
|--|-----------------------|-----------------------|----------------------------|---------------------------|-----------------------|
| Picked up meal for others at work | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Took time to advise, coach, or mentor a co-worker | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Helped co-worker learn new skills or shared job | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Helped new employees get oriented to the job | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Lent a compassionate ear when someone had a work problem | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Lent a compassionate ear when someone had a personal problem | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Changed vacation schedule, work days, or shifts to accommodate co-worker's needs | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Offered suggestions to improve how work is done | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Offered suggestions for improving the work environment | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Finished something for co-worker who had to leave early | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Organisational Citizenship Behaviours - 2/2

Indicate how often, from never to every day, you have performed the following behaviours.

Social Circumplex Traits and Organisational Behaviour

| | Never | Once or twice | Once or twice per month | Once or twice per week | Every day |
|--|-----------------------|-----------------------|----------------------------|---------------------------|-----------------------|
| Finished something for co-worker who had to leave early | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Helped a less capable co-worker lift a heavy box or other object | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Helped a co-worker who had too much to do | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Volunteered for extra work assignments | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Took phone messages for absent or busy co-worker | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Said good things about your employer in front of others | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Gave up meal and other breaks to complete work | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Volunteered to help a co-worker deal with a difficult customer | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Went out of the way to give co-worker encouragement or express appreciation | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Decorated, straightened up, or otherwise beautified common work space | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Defended a co-worker who was being "put-down" or spoken ill of by other co-workers or supervisor | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |